Index to Volume 31

BENJAMIN B. BAUER
CBS Laboratories, 227 High Ridge Road, Stamford, Connecticut

How to Use This Index

This index is of similar form to the Cumulative Indexes of this journal, covering, respectively, Volumes 1–10, Volumes 11–20, and Volumes 21–30 (which is in preparation), and is composed of two main divisions: the Author Index and the Subject Index.

The Subject Index to Volume 31 of *The Journal of the Acoustical Society of America* lists the titles of all the papers, abstracts, and patents under thirteen section headings as follows: 0, General, Unclassified; 1, Acoustical Society of America; 2, Architectural Acoustics; 3, Books, Bibliographies, and Surveys; 4, The Ear and Hearing; 5, Applied Acoustics, Instruments and Apparatus; 6, Musical Instruments and Music; 7, Noise; 8, Standards; 9, Speech and Singing; 10, Ultrasonics (Supersonics); 11, Waves and Vibrations; 12, Mechanical Vibration and Shock; and 13, Underwater Sound. Each of these sections is further divided into a considerable number of decimally numbered subjects, which are listed below under the heading, "Classification of Subjects." Each subject is divided into eight parts entitled Papers, Letters to the Editor, Abstracts, Subtitles, Patents, Book Reviews, News, and Errata. Under Papers will be found the original titles of all the papers appearing in the journal on that subject. Under Abstracts are listed the titles of the papers presented at meetings. Since a great amount of valuable material appears in the journal in papers whose titles cannot fully describe all the subjects which the papers cover, some subtitles of papers have been indexed under the heading Subtitles. When subtitles covering the material did not appear in the paper, they were written; the captions of some of the figures were also included under this heading. Thus, while the Subtitles portion of the index is informal, it is hoped that it will increase the probability of finding the desired information quickly. All patents appearing in the journal are listed under the heading Patents. New classifications are added from time to time. The year in which classifications are added appears in parentheses after the subject classes.

The reader or his librarian should go over the list of errata classified under 0.1, and either make the indicated corrections in the original papers or enter a note beside the title of the original paper—"See Erratum, Vol. XX, p. XXX."

References on most subjects can be located immediately by a logical use of the Classification of Subjects below. In case the reference sought is of an unusual character such that there is uncertainty as to the subject under which it might have been classified, this can usually be found quite quickly by the process of eliminating the sections and subjects under which it is quite improbable that it might have been listed. In case of doubt, a title has often been listed under a number of subjects.

Obviously, the Author Index is more convenient than the Subject Index when one knows the name of the author of the paper in which he is interested.

The References to Contemporary Papers on Acoustics are identified in each issue by the same decimal numbers listed below, and may be consulted for references in other journals than our own. In Volume 31 these references will be found on pages 87, 377, 641, 1043, 1275, and 1542.

Classification of Subjects

0. General, Unclassified
- 0.1 Errata
- 0.2 Conferences, Lectures, and Announcements, not of the Acoustical Society
- 0.3 Nonacoustical Theories
- 0.4 Nonacoustic Devices

1. Acoustical Society of America
- 1.1 General, Unclassified
- 1.2 Constitution and Bylaws
- 1.3 History
- 1.4 Honorary Members
- 1.5 Meetings
- 1.6 Members and Membership Lists
- 1.7 Committee Activities

2. Architectural Acoustics
- 2.1 General, Unclassified
- 2.2 Auditorium Design. (See also 7.6.)
- 2.3 Studies of Existing Auditoria and Acoustic Enclosures
- 2.4 Sound Absorption, Theory and Methods of Measurement of. (See also 2.5.)
- 2.5 Materials for Sound Absorption. Values of Absorption Coefficients and Acoustic Impedances
- 2.6 Noise Reduction by Increased Room Absorption
- 2.7 Reverberation and Echoes. (See also 2.3, 2.4, 2.8, 2.9, and 2.10.)
- 2.8 Reverberation Measuring Instruments. (See also 2.7 and 5.15.)
- 2.9 Sound Transmission, Theory and Methods of Measurement of. (See also 2.10.)
- 2.10 Sound Insulating Structures. Values of Transmission Coefficients
- 2.11 Vibration Insulating Supports. (See also 5.21 and 12.3i.)
- 2.12 Damping of Panels
- 2.13 Anechoic Chamber Design. Wedges

3. Books, Bibliographies, and Surveys
- 3.1 Books and Book Reviews
- 3.2 Bibliographies
- 3.3 Patents
- 3.4 Surveys, Historical and Philosophical Literature

4. The Ear and Hearing
- 4.1 General, Unclassified
- 4.2 Anatomy and Physiology of the Ear
- 4.3 Binaural Hearing. Localization

4.4 Deafness. (See also 5.5.)
4.4.5 Auditory Fatigue, Temporary Threshold Shift
4.5 Instruments Relating to Hearing, and for the Testing of Hearing. (See also 5.5.)
4.6 Loudness, Threshold Determinations
4.7 Masking. (See also 5.5.)
4.8 Phase Effects. (See also 4.3.)
4.9 Pitch
4.10 Subjective Tones
4.11 Theories of Hearing
4.12 Timbre
4.13 Ear Acoustical Impedance
4.14 Ear Protectors, Earplugs
4.15 Perception of Signals. Detection of Signals in Noise

5. Applied Acoustics, Instruments and Apparatus. (See also 2.8, 4.5, 9.6, 10.3, 12.3, 12.3p, 12.3Z, 13.11, 13.11n, and 13.11t.)

5.1 General, Unclassified
5.2 Amplifiers and Attenuators
5.3 Acoustic Impedance Measurement. (See also 11.4 and 12.3Z.)
5.4 Analyzers and Filters, Acoustic and Electric. Oscillographs. (See also 5.15 and 12.3f.)
5.5 Audiometers. (See also 4.4 and 4.5.)
5.5.1 Broadcasting
5.6 Chronographs
5.7 Frequency Standards, Frequency Measuring and Recording Instruments
5.8 Loudspeakers, Horns. (See also 5.13, 5.17, and 5.18.)
5.9 Microphones. Microphone Calibration Equipment and Techniques. (See also 5.18, 12.3p, and 13.11t.)
5.10 Navigational Instruments Using Air Sound. Altitude Measuring Instruments. Sound Ranging (for Underwater Ranging see 13.11n)
5.11 Oscillators, Electrical and Mechanical
5.12 Phase Meters
5.13 Public Address Systems and Sound Picture Installations
5.14 Rayleigh Disks. Radiometers
5.15 Sound Level Meters. Level Recorders. Sound Pressure Measurement. (See also 5.4.)
5.16 Sound Recording and Reproducing. General
5.16d Disk Recording (including cutting and embossing)
5.16f Film Recording (by photographic means)
5.16m Magnetic Recording
5.17 Telephones, Telephone Earphones, Intercommunication Systems. (See also 5.13.)
5.18 Transducing Principles, Structures, and Materials, General. (See also 5.8, 5.9, 5.17, 10.3, 12.3p, 13.7, and 13.11t.)
5.18m Magnetic Transducers: Magnetostriction
5.18p Piezoelectric Transducer, Ferroelectrics
5.19 Tuning Forks
5.20 Tone and Wave Synthesizers
5.21 Vibration Devices. Devices for Generating or Damping Vibrations. (See also 12., 12.3, 12.3i, 12.3p, and 12.3v.)

6. Musical Instruments and Music

6.1 General, Unclassified
6.2 Bells, Xylophones. Other Instruments Having Rigid Vibrators
6.3 Brass Wind Instruments (lip vibrated)
6.4 Drums and Other Membranophonic Instruments
6.5 Pipe Organs
6.6 Pianos and Other Keyboard Stringed Instruments
6.7 Violin Family. Stringed Instruments Except Keyboard Type
6.8 Wood Winds
6.9 Electrical Musical Instruments
6.10 Reed Organs. Accordions, Harmonicas

7. Noise

7.1 General, Unclassified
7.2 Annoyance
7.3 Audiograms of Noise
7.4 City Noise
7.5 Frequency Analyses of Noise
7.6 Noise in Buildings. (See also 2.2.)
7.7 Machinery Noise. Mufflers. Noise Silencers
7.8 Noise Generators, Sirens
7.9 Noise of Animals, Biological Noise. (See also 13.9.)
7.10 Aerodynamic Noise, Jet Noise

8. Standards

8.1 General, Unclassified

9. Speech and Singing

9.1 General, Unclassified
9.2 Anatomy and Physiology. Speech Production
9.3 Intelligibility of Speech. Articulation Testing
9.4 Message Reception
9.5 Sounds of Speech. Acoustic Descriptions. Combinatorial and Statistical Properties
9.6 Instruments Relating to Speech
9.9 Singing
9.10 Linguistics, Phonetics, Semantics. Informational Aspects
9.11 Speech Perception
9.12 Systems for Recognition, Transmission, and Generation of Speech

10. Ultrasonics (Supersonics)

10.1 General, Unclassified
10.2 Light Affected by Ultrasonic Waves
10.3 Ultrasonic Instruments. (See also 5.18.)
10.4 Gases, Ultrasonic Velocities, Dispersion, and Absorption. (See also 11.3.)
10.5 Liquids, Ultrasonic Velocities, Dispersion, and Absorption. (See also 13.2 and 13.3.)
10.6 Solids, Ultrasonic Velocities, Dispersion, and Absorption
10.7 Physical Effects of Ultrasonic Waves. (See also 10.2.)
10.8 Chemical Effects of Ultrasonic Waves
10.9 Biological Effects of Ultrasonic Waves

11. Waves and Vibrations. (See also 13.)

11.1 General, Unclassified
11.1.5 Analogies
11.2 Diffraction. Interference. Scattering. Reflection. Echoes, Standing Waves
11.2.1 Gross Movement of Matter by Sound or Vibration. Acoustic Streaming. Chladni Figures. Kundt's Striae. Sensitive Flames. (See also 5.14 and 10.7.)

11.3 Propagation of Sound. Absorption during Propagation. Velocity of Sound. Second Sound. Refraction. Wavelength. Doppler Effect. (See also 10.4, 10.5, 10.6, 13.2, and 13.3.)
11.4 Radiation from Vibrating Objects. Acoustic Impedance. (See also 5.3, 12.3Z, and 13.7.)
11.5 Sounds of Finite Amplitude. Distortion. (See also 12.3 and 13.10.)
11.6 Noise in Tubes, Helmholtz Resonators
11.6.1 Sources of Sound. (See also 7.8 and 11.4.)
11.7 Theory of Waves. (See also 5.4, 11.1.5, and 12.7.)
11.8 Biological Effects of Sound. (See also 10.9 and 12.9.)
11.9 Physical Effects of Sound. (See also 10.7, 10.8, 11.2.1, and 12.10.)

12. Mechanical Vibration and Shock. (See also 5. and 11.)
12.1 General, Unclassified
12.3 Instruments and Apparatus Relating to Vibration and Shock. (See also 5.3, 5.4, 5.9, and 5.21.)
12.3f Mechanical Filters. (See also 5.4.)
12.3i Vibration Isolators, Attenuators and Dampers. (See also 2.11 and 5.21.)
12.3p Vibration Pickups and Indicators, Calibration Equipment and Techniques. (See also 5.9, 5.18, and 13.11t.)
12.3v Vibration Generators. Shake Tables. (See also 5.21.)
12.3Z Mechanical Impedance Measurement. (See also 5.3 and 11.4.)
12.5 Shock. (See also 11.5 and 13.10.)
12.7 Vibration. Theory of Vibrating Systems. (See also 11.7 and 11.1.5.)
12.9 Biological Effects of Vibration and Shock. (See also 10.9 and 11.8.)
12.10 Seismology Seismographs

13. Underwater Sound
13.1 General, Unclassified
13.2 Propagation of Sound in Water. Attenuation. Fluctuation
13.3 Velocity of Sound in Water. Refraction. Doppler Effect
13.4 Reflection. Echoes. Structures for Absorbing Sound in Water
13.5 Interference. Diffraction
13.6 Scattering. Reverberation in Water
13.7 Radiation from Objects Vibrating under Water. Acoustical Impedance. Mechanical Impedance. (See also 5.3, 11.4, and 12.3Z.)
13.8 Sound Generation by Fluid Motion, Bubbles, Turbulence, Cavitation, or Splashes
13.9 Noise in Water. Ship Noise. Biological Noises
13.10 Sounds of Finite Amplitude in Water. Explosions. Distortion. Cavitation. (See also 11.5 and 12.5.)
13.11 Instruments Relating to Underwater Sound. General
13.11n Navigational Instruments Using Underwater Sound. Underwater Listening and Echo Ranging Devices. Sonar
13.11t Transducers for Underwater Sound. Transducer Calibration. (See also 5.18.)

THE JOURNAL OF THE ACOUSTICAL SOCIETY OF AMERICA VOLUME 31, NUMBER 12 DECEMBER, 1959

Author Index to Volume 31

Numerals in boldface type refer to volume numbers. (A) designates Abstract; (L) designates Letter to the Editor; (T) designates Title only. A separate Author Index to Patent Inventors appears at the end of the regular author index.

Abramson, Arthur S. Vocoder output and whispered speech in a tone language: Thai. **31**: 1568(A)—1959
——(see Lotz, John). **31**: 1568(A)—1959
Ackerman, Eugene (see Anthony, Adam). **31**: 1430—1959
——(see Binstock, Leonard). **31**: 1583(A)—1959
Acoustical Materials Association, publisher. *Sound Absorption Coefficients* reviewed by L. L. Beranek. **31**: 640–1959
Adams, Carl E. Review of *Basic Pulses* by Irving Gottlieb. **31**: 257—1959
——Review of *Materials and Processes of Electron Devices* by Max Knoll. **31**: 1274—1959
——(see Nyborg, W. L.). **31**: 706—1959
——(see Walker, C. T.). **31**: 813(L)—1959
Ahmend, Rais and Richard Fatehchand. Effect of sample duration on the articulation of sounds in normal and clipped speech. **31**: 1022—1959
Ali, I. (see Hashmi, S. Z. R.). **31**: 1384(L)—1959
Allen, Clark E. Behavioral evidence in the rat on the question of frequency modulation and amplitude modulation. **31**: 1573(A)—1959
Allen, Clayton H. and B. G. Watters. New siren design. **31**: 119(A)—1959
——**and B. G. Watters.** Siren design for producing controlled wave forms at high intensities. **31**: 177—1959
——**and B. G. Watters.** Siren design for producing controlled wave form with amplitude modulation. **31**: 463—1959
——**and Bill G. Watters.** Siren design procedure. **31**: 842(A)—1959
——(see Kamperman, G. W.). **31**: 1570(A)—1959
Altshuler, Morton W. (see Brubaker, Robert S.). **31**: 1362—1959
American Industrial Hygiene Association, publisher. *Industrial Noise Manual* reviewed by Lewis S. Goodfriend. **31**: 541—1959
Anderson, C. D. and J. L. Collins. Measurement of acoustic definition in several large auditoria. **31**: 118(A)—1959
——(see Miller, J. D.). **31**: 1574(A)—1959
Anderson, Floyd C. Meters for predicting the subjective response to noise. **31**: 1580(A)—1959
Anderson, O. L. and H. J. McSkimin. Determination of the equation of state of solids by ultrasonic methods. **31**: 848(A)—1959
Anderson, Victor C. Digital array phasing. **31**: 1571(A)—1959
Andrews, G. J. Isolation of a rigid body on resilient supports from a vibration environment. **31**: 1578(A)—1959
Ankerman, P. W. and R. A. Rubega. Bistatic scattering from totally reflecting flat plates. **31**: 841(A)—1959
Anthony, Adam, Eugene Ackerman, and James A. Lloyd. Noise stress in laboratory rodents. I. Behavioral and endocrine response of mice, rats, and guinea pigs. **31**: 1430—1959
——**and Jack E. Harclerode.** Noise stress in laboratory

rodents. II. Effects of chronic noise exposures on sexual performance and reproductive function of guinea pigs. **31**: 1437—1959

Arase, T. Some characteristics of long-range explosive sound propagation. **31**: 588—1959

Arnold, J. S. and J. G. Martner. Description of the resonances of short solid barium titanate cylinders. **31**: 217—1959

Ashley, George H. 10-millisecond mechanical audio-frequency delay line. **31**: 843(A)—1959

Bach, R. E., Jr., C. R. Howard, and S. H. Chang. Measurement of digital channel capacity for a speech compression system. **31**: 853(A)—1959

——(see Sukys, R.). **31**: 113(A)—1959

Bacon, W. Edward (see Fozard, James L.). **31**: 1681(L)—1959

——(see Small, Arnold M., Jr.). **31**: 128(A), 508—1959

Balachandran, C. G. Random sound field in reverberation chambers. **31**: 851(A), 1319—1959

Baltrukonis, J. H. and W. G. Gottenberg. Thickness-shear vibrations of circular bars. **31**: 734—1959

Barnard, G. R. and C. M. McKinney. Scattering of acoustic energy by solid and air-filled cylinders in water. **31**: 1566(A)—1959

Barney, H. L., F. E. Haworth, and H. K. Dunn. New artificial larynx. **31**: 844(A)—1959

Barraclough, T. W., R. D. Collier, and A. C. Summers. Dynamic force measuring system for machinery vibration with particular application to balancing of assembled machines. **31**: 1104—1959

Basch, M. W. (see Fitzmorris, M. J., Jr.). **31**: 843(A)—1959

Bastian, Jarvis, Pierre Delattre, and A. M. Liberman. Silent interval as a cue for the distinction between stops and semivowels in medial position. **31**: 1568(A)—1959

Batchelder, Laurence. When sonar was called submarine signalling. **31**: 832(A)—1959

Bauer, Benjamin B. Acoustical research facilities at Columbia Broadcasting System Laboratories. **31**: 852(A)—1959

——Review of *Fundamentals of Transistors* by Leonard Krugman. **31**: 257—1959

——Theory of isophonic speaker systems. **31**: 128(T)—1959

——**and George W. Sioles.** New stereophonic projection console. **31**: 830(A)—1959

Beatty, Louis G. Absolute calibration of pressure-sensitive hydrophones by a Thevenin's generator method. **31**: 832(A)—1959

——(see Bobber, Robert J.). **31**: 832(A)—1959

Belar, Herbert (see Olson, Harry F.). **31**: 845(A), 1565(A)—1959

Belcher, Peter M., Arthur L. Eshleman, and Joseph D. Van Dyke. Comparison of stress response and fatigue test results under random and sinusoidal acoustic loading. **31**: 125(A)—1959

Bell, C. G., F. Poza, and K. N. Stevens. Formant tracking by computer. **31**: 1563(A)—1959

——(see Stevens, K. N.). **31**: 844(A)—1959

Bell, Thaddeus G. Effect of phase errors on the direction finding precision of hydrophone arrays. **31**: 1567(A)—1959

——Hydrophone minor lobes produced by volume scattering. **31**: 1304—1959

Belsheim, R. O. Submarine shock motions resulting from underwater explosions. **31**: 847(A)—1959

Benade, Arthur H. Mathematical theory of woodwind fingerholes. **31**: 1564(A)—1959

——On woodwind instrument bores. **31**: 137—1959

——(see Ormestad, Helmut J.). **31**: 1588(A)—1959

Bendat, Julius S. *Principles and Applications of Random Noise Theory* reviewed by R. W. Benson. **31**: 86—1959

Benfield, Wilcomb A. (see Cox, Hugh L.). **31**: 963—1959

Benson, R. W. Review of *Principles and Applications of Random Noise Theory* by Julius S. Bendat. **31**: 86—1959

——(see Raelson, V. J.). **31**: 129(A)—1959

Beran, A. V. (see Misrahy, G. A.). **31**: 1575 (2 abstracts)—1959

Beranek, Leo L. Acoustics of the Fredric R. Mann Concert Hall, Tel Aviv, Israel. **31**: 882—1959

——Explanations from theory for differences between laboratory and field T. L. data. **31**: 834(A)—1959

——Review of *Acoustics, Noise and Buildings* by P. H. Parkin and H. R. Humphreys. **31**: 1273—1959

——Review of *Sound Absorption Coefficients* published by the Acoustical Materials Association. **31**: 640—1959

——(see Johnson, F. Russell). **31**: 1587(A), 1588(A)—1959

——(see Kryter, Karl D.). **31**: 112(T)—1959

Berglund, Edward D. (see Larson, Larry G.). **31**: 247(L)—1959

Berman, A., C. S. Clay, R. A. Frosch, and H. B. Sherry. Fluctuations of low-frequency harmonic signals over very long transmission paths in the deep ocean. **31**: 838(A)—1959

——(see Northrop, J.). **31**: 838(A)—1959

Bernstein, Robert I. (see Vogel, Reinhold). **31**: 1571(A)—1959

Beyer, R. T. Parameter of nonlinearity in fluids. **31**: 1586(A)—1959

Bhatia, A. B. Scattering of high-frequency sound waves in polycrystalline materials. **31**: 16—1959

——**and R. A. Moore.** Scattering of high frequency sound waves in polycrystalline materials. II. **31**: 1140(L)—1959

Biesterfeldt, H. J., Jr. Vibration of rods between 20 and 200 000 cycles. **31**: 111(A)—1959

Bigelow, Julian H. Fundamental notions of detectability. **31**: 119(T)—1959

Bilger, Robert C. Additivity of different types of masking. **31**: 1107—1959

——(see Eldredge, Donald H.). **31**: 123(A)—1959

Binstock, Leonard and Eugene Ackerman. Photographic studies of erythrocytes in ultrasonic fields. **31**: 1583(A)—1959

Birch, William B. (see Dietz, Frank T.). **31**: 837(A)—1959

Birdsall, T. G. Concept of ideal observers. **31**: 119(T)—1959

——(see Clarke, F. R.). **31**: 629(L)—1959

Bishop, D. E. Comparison of panel sound transmission data with noise reduction measurements of an aircraft fuselage section. **31**: 116(A)—1959

Black, John W. and W. Carroll Hixson. Number of axis crossings and the intelligibility of speech. **31**: 1384(L)—1959

Blaik, M. and C. S. Clay. Propagation of sound originating in the water and detected in the ground. **31**: 838(A)—1959

——(see Clay, C. S.). **31**: 1572(A)—1959

Bland, R. E. (see Lott, G. B.). **31**: 1577(A)—1959

Bobber, Robert J. Acoustic characteristics of a Florida lake bottom. **31**: 250(L)—1959

——**and Louis G. Beatty.** Impedance tube for underwater sound transducer evaluation. **31**: 832(A)—1959

——(see Sims, Claude C.). **31**: 131(A), 1315—1959

Bohls, Fred and Herbert Hillery. Frequency selective characteristics of arrays of parallel tubes having sound-soft walls. **31**: 131(A)—1959

Bohm, H. V. (see Morse, R. W.). **31**: 1523—1959

Bolt, Richard H. Sound absorption by free-hanging resistive sheets. **31**: 851(A)—1959

——(see Johnson, F. R.). **31**: 1587(A)—1959

Bömmel, H. E. and K. Dransfeld. Excitation, detection, and applications of hypersonic waves. **31**: 837(A)—1959

Bonvallet, George L. Interpreting laboratory sound transmission loss data for design use. **31**: 834(A)—1959

Booker, Jonathan, Ernest Yeager, and Frank Hovorka. Ultrasonic vibration potentials in polyelectrolytes. **31**: 120(A)—1959

——(see Yeager, Ernest). **31**: 848(A)—1959

Borg, Matthew F. and Gerald A. Brigham. Displacement, resonant frequencies, and impedance characteristics of a free-end cylindrical shell. **31**: 1576(A)—1959
——(see Brigham, Gerald A.). **31** 1576(A)—1959
Bouman, M. A. (see Plomp, R.). **31**: 749—1959
Bowsher, John M. (see Le Caine, Hugh). **31**: 839(A)—1959
Boyd, R. L. F. (see Massey, H. S. W.). **31**: 1274—1959
Brackenridge, J. B. and W. L. Nyborg. Self-maintained transverse oscillations of a jet; edge tones. **31**: 114(A)—1959
Brady, L. J. Magnetostrictive ferrites for transducer applications. **31**: 854(A)—1959
Brady, P. T. (see Stevens, K. N.). **31**: 844(A)—1959
Brandauer, Carl M., Norman B. Reilly, and A. M. Liberman. Combined spectral and temporal segmentation of speech. **31**: 1569(A)—1959
Breazeale, M. A. and E. A. Hiedemann. Optical methods for the measurement of the sound pressure in liquids. **31**: 24—1959
Brigham, Gerald A. and Matthew F. Borg. Sound radiation from a finite cylindrical shell with rigid end caps. **31**: 1576(A)—1959
——(see Borg, Matthew F.). **31**: 1576(A)—1959
——(see Penhallow, William S.). **31**: 840(A)—1959
Broadbent, D. E. *Perception and Communication* reviewed by Ira J. Hirsh. **31**: 374—1959
Broadbent, Donald E. and Peter Ladefoged. Auditory perception of temporal order. **31**: 1539(L)—1959
Brociner, Victor (see Levy, Sidney E.). **31**: 1256—1959
Brooks, Richard. Determination of the velocity of sound in distilled water. **31**: 1586(A)—1959
Brown, James R., Jr. (see Wallace, John D.). **31**: 712—1959
Brown, John L., Jr., and Richard O. Rowlands. Design of directional arrays. **31**: 1638—1959
Brown, M. V. and J. Ricard. Fluctuations in pulsed cw transmission. **31**: 1572(A)—1959
Brown, R. M. (see Goldstein, M. H., Jr.). **31**: 356—1959
Brubaker, Robert S. and Morton W. Altshuler. Vowel overlap as a function of fundamental frequency and dialect. **31**: 1362—1959
Bruel, Per V., Gunnar Rasmussen, Alan Morris, and Jack Mowry. Measuring the free field correction for a new condenser microphone. **31**: 1570(A)—1959
Budal, K., E. Höy, and H. Olsen. Measurements of acoustic radiation force. **31**: 1536—1959
Burgess, John C. Errors in approximations to maximum transmissibility. **31**: 1576(A)—1959
Burkhard, M. D. (see Raelson, V. J.). **31**: 129(A)—1959
——(see Sabine, Hale J.). **31**: 845(A)—1959
Burlage, S. R. (see Carome, E. F.). **31**: 111(A), 1586(A)—1959
Bycroft, G. N. White noise representation of earthquake motion in elasto-plastic structures. **31**: 847(A)—1959

Callaway, Vern. Terminal noise. **31**: 112(A)—1959
Campbell, Richard A. Just noticeable differences for changes of interaural time differences as a function of interaural time differences. **31**: 123(A)—1959
Capraro, Rene and Morris Halle. Perception of damped sine waves. **31**: 126(A)—1959
Cardinell, R. L. (see Goodfriend, Lewis S.). **31**: 849(A)—1959
Carlisle, Richard W. Dynamic considerations for neutralizing shock stresses in buildings subjected to fringe-area nuclear blasts. **31**: 1582(A)—1959
——Method of improving acoustic transmission in folded horns. **31**: 1135—1959
——**and Arnold Schwartz.** Evaluation of a stereophonic loudspeaker by multiple microphone arrays. **31**: 830(A), 1348—1959
——(see Levy, Sidney E.). **31**: 1256—1959
——(see Sioles, George W.). **31**: 129(A)—1959
Carnap, Rudolf. Introduction to *Symbolic Logic and Its Applications* reviewed by R. B. Lindsay **31**: 640—1959
Carome, E. F., S. R. Burlage, and W. H. Nichols. On the effects of diffraction in ultrasonic absorption measurements. **31**: 1586(A)—1959
——, **F. A. Gutowski, and S. R. Burlage.** Ultrasonic absorption in ethyl acetate. **31**: 111(A)—1959
Carrell, R. M. (see Ware, E. R.). **31**: 128(A)—1959
Carstensen, Edwin L. and Herman P. Schwan. Absorption of sound arising from the presence of intact cells in blood. **31**: 185—1959
——**and Herman P. Schwan.** Acoustic properties of hemoglobin solutions. **31**: 305—1959
Carter, Richard C. (see Mills, Peter J.). **31**: 122(A)—1959
Carter, Richard L. (see Farley, Jane). **31**: 1585(A)—1959
Carterette, Edward C. and Michael Cole. Comparison of the receiver operating characteristic for messages received by ear and by eye. **31**: 126(A)—1959
——**and Michael Cole.** Comparison of the reception of heterogeneous and relatively homogeneous messages under repetition in noise. **31**: 853(A)—1959
—— **and Michael Cole.** Repetition and confirmation of messages received by ear and by eye. **31**: 1569(A)—1959
Cavanaugh, William J. Sound-absorbing treatment for large auditoriums. **31**: 122(A)—1959
—— (see Newman, R. B.). **31**: 1587(A)—1959
Chang, S. H. (see Bach, R. E., Jr.). **31**: 853(A)—1959
—— (see Sukys, R.). **31**: 113(A)—1959
Charan, K. (see Hirsh, I. J.). **31**: 1585(A)—1959
Cheever, Richard N. and Hans L. Oestreicher. Pressure disturbance on the ground due to a low-flying aircraft. **31**: 845(A)—1959
Cherry, Colin and B. McA. Sayers. On the mechanism of binaural fusion. **31**: 535(L)—1959
Cho, Alfred C. F. Method for predicting in-flight noise on jet aircraft structure. **31**: 116(A)—1959
—— **and Robert B. Watson.** Pulse technique applied to acoustical testing. **31**: 118(A), 1322—1959
Christoff, Jerry (see Veneklasen, Paul S.). **31**: 853(A)—1959
Clark, C. A. (see Harris, W. T.). **31**: 854(A)—1959
Clark, Melville, Jr. Proposed keyboard musical instrument. **31**: 403—1959
Clarke, Frank R. Proportion of correct responses as a function of the number of stimulus-response alternatives. **31**: 835(A)—1959
——, **T. G. Birdsall, and W. P. Tanner, Jr.** Two types of ROC curves and definitions of parameters. **31**: 629(L)—1959
Clay, C. S. Propagation of band-limited noise in a layered wave guide. **31**: 838(A), 1473—1959
——, **M. Blaik, H. B. Sherry, L. Tyson, and P. Weber.** Propagation of sound between a fixed source and a fixed receiver in the ocean. **31**: 1572(A)—1959
—— (see Berman, A.). **31**: 838(A)—1959
—— (see Blaik, M.). **31**: 838(A)—1959
Cohen, Alexander and John F. Corso. Further assessment of the effects of intensity upon the pitch of pure tones. **31**: 1565(A)—1959
Cole, John N. (see von Gierke, H. E.). **31**: 116(A)—1959
Cole, Michael (see Carterette, Edward C.). **31**: 126(A), 853(A), 1569(A)—1959
Collier, R. D. (see Barraclough, T. W.). **31**: 1104—1959
Collins, J. L. (see Anderson, C. D.). **31**: 118(A)—1959
Coop, J. J. Instrumentation and techniques for oceanographic acoustic surveys by aircraft. **31**: 833(A)—1959
Cooper, F. S. (see Liberman, A. M.). **31**: 109(A), 1490—1959
Corliss, Edith L. R. Mechanistic aspects of hearing. **31**: 841(A)—1959
Corso, John F. Age and sex differences in pure-tone thresholds. **31**: 498—1959
—— (see Cohen, Alexander). **31**: 1565(A)—1959

Cottell, E. C. Application and performance of liquid jet transducers. **31**: 119(A)—1959
Covell, Walter P. (see Eldredge, Donald H.). **31**: 123(A)—1959
—— (see Miller, J. D.). **31**: 1574(A)—1959
Cox, Hugh L. and Wilcomb A. Benfield. Vibration of uniform square plates bounded by flexible beams. **31**: 963—1959
Craig, James H. and Lloyd A. Jeffress. Effect of phase on the quality of a two-component, unsymmetrical, complex tone. **31**: 1584(A)—1959
Crandall, Stephen H., editor. *Random Vibration* reviewed by Charles E. Crede. **31**: 86—1959
Crede, Charles E. Review of *Random Vibration* edited by Stephen H. Crandall. **31**: 86—1959
Creelman, C. Douglas. Detection of complex wave forms: effects of signal band width and duration. **31**: 836(A)—1959
—— Frequency discrimination as a function of interpresentation interval. **31**: 1577(A)—1959
—— Mechanisms of frequency response extension. **31**: 126(A)—1959
Curtis, C. W. (see DeVault, G. P.). **31**: 635(L)—1959
Curtis, J. F. (see Solomon, L. N.). **31**: 853(A)—1959
Curtis, Jack F. (see Tobias, Jerry V.). **31**: 127(A)—1959

Dagg, I. R. (see Embleton, T. F. W.). **31**: 849(A), 852(A), 1570(A)—1959
—— (see Thiessen, G. J.). **31**: 843(A)—1959
Dalen, Betty Ann (see Goldberg, Jay M.). **31**: 1575(A)—1959
Daniels, F. J. *The Sound System of Standard Japanese. A Tentative Account from the Teaching Point of View* reviewed by Osamu Fujimura. **31**: 640—1959
Daniels, Fred B. Noise-reducing line microphone for frequencies below 1 cps. **31**: 128(A), 529—1959
David, Edward E., Jr. Review of current European research in speech and auditory perception. **31**: 1567(A)—1959
——, **Newman Guttman, and W. A. van Bergeijk.** Binaural interaction of high-frequency complex stimuli, **31**: 774—1959
——, **Max V. Mathews, and H. S. McDonald.** Digital computer simulation for speech experiments. **31**: 113(A)—1959
——, **and G. R. Schodder.** Pitch discrimination of complex sounds. **31**: 1565(A)—1959
—— (see Mathews, M. V.). **31**: 834(A)—1959
—— (see Miller, Joan E.). **31**: 109(A), 1564(A)—1959
—— (see Pierce, John R.). **31**: 256—1959
—— (see Schroeder, Manfred R.). **31**: 113(A)—1959
Davis, Hallowell (see Deatherage, Bruce H.). **31**: 122(A), 479—1959
—— (see Diamond, Sidney P.). **31**: 1574(A)—1959
—— (see Eldredge, Donald H.). **31**: 123(A)—1959
—— (see Teas, Don C.). **31**: 1574(A)—1959
Deatherage, Bruce H., Donald H. Eldredge, and Hallowell Davis. Latency of action potentials in the cochlea of the guinea pig. **31**: 122(A), 479—1959
—— **and Ira J. Hirsh.** Auditory localization of clicks. **31**: 486—1959
de Boer, E. Acoustic interaction in vented loudspeaker enclosures. **31**: 246(L)—1959
Decker, Louis R. and Irwin Pollack. Multiple observers, message reception, and rating scales. **31**: 1327—1959
—— (see Pollack, Irwin). **31**: 273—1959
Deitz, George W., III (see Wallace, John D.). **31**: 712—1959
Delattre, Pierre (see Bastian, Jarvis). **31**: 1568(A)—1959
—— (see Liberman, A. M.). **31**: 1490—1959
Denes, P. Preliminary investigation of certain aspects of intonation. **31**: 852(A)—1959
Derbyshire, Arthur J. (see Farley, Jane). **31**: 1585(A)—1959
—— (see Mills, Peter J.). **31**: 122(A)—1959
—— (see Norkus, Frank J.). **31**: 842(A)—1959
Dersch, W. C. A voice analog. **31**: 1563(A)—1959
DeVault, G. P. and C. W. Curtis. Problem of elastic bar with mixed time-dependent end conditions of general form. **31**: 635(L)—1959
Devin, Charles, Jr. Survey of thermal, radiation, and viscous damping of pulsating air bubbles in water. **31**: 1654—1959
Diamond, Sidney P., Don C. Teas, and Hallowell Davis. Electrophysiologic responses to acoustic transients. II. Auditory-nerve action potentials. **31**: 1574(A)—1959
—— (see Teas, Don C.). **31**: 1574(A)—1959
Diercks, K. Jerome and Lloyd A. Jeffress. Effect of interaural phase on the binaural absolute threshold for tone. **31**: 1584(A)—1959
Dietz, Frank T., J. Steven Kahn, and William B. Birch. Investigation of shallow water ambient noise. **31**: 837(A)—1959
Doelle, Leslie L. Importance of sound insulation in residential architecture. **31**: 833(A)—1959
Doelling, Norman. On the noise attenuation characteristics of package mufflers for ventilating systems. **31**: 1578(A)—1959
—— **and Karl D. Kryter.** Some characteristics of the noise produced by several contemporary Army weapons. **31**: 850(A)—1959
Dolansky, Ladislav. Choice of base signals in speech communication. **31**: 114(A)—1959
Dransfeld, K. (see Bömmel, H. E.). **31**: 837(A)—1959
Dreher, John J. Aircraft cabin comfort studies. **31**: 1580(A)—1959
Dunn, Floyd and William J. Fry. Ultrasonic absorption microscope. **31**: 120(A), 632(L)—1959
Dunn, H. K. (see Barney, H. L.). **31**: 844(A)—1959
Dyer, Ira. Boundary layer induced flow noise. **31**: 1566(A)—1959
—— Distribution of sound sources in a jet stream. **31**: 1016—1959
—— Response of plates to a decaying and convecting random pressure field. **31**: 922—1959
—— Sonic failure. **31**: 125(A)—1959
—— **and B. G. Watters.** Excitation of finite plates by variable incidence sound. **31**: 840(A)—1959

Egan, James P. Theory of signal detectability in speech communication research. **31**: 119(T)—1959
——, **Gordon Z. Greenberg, and Arthur I. Schulman.** Detection of signals presented at random times. **31**: 1579(A)—1959
——, **Arthur I. Schulman, and Gordon Z. Greenberg.** Operating characteristics determined by binary decisions and by ratings. **31**: 768, 835(A)—1959
Ehmer, Richard H. Masking by tones *vs* noise bands. **31**: 1253—1959
—— Masking patterns of tones. **31**: 1115—1959
—— Pitch and tonal masking. **31**: 1566(A)—1959
Ehrlich, S. L., N. Serotta, and K. Kleinschmidt. Multimode ceramic transducers. **31**: 854(A)—1959
Einspruch, Norman G. and Rohn Truell. Propagation of traveling waves in a circular cylinder having hexagonal elastic symmetry. **31**: 691—1959
Elder, Samuel A. Cavitation microstreaming. **31**: 54—1959
Eldred, Ken. Acoustical factors in jet airport design. **31**: 112(A), 547—1959
Eldredge, Donald H., Walter P. Covell, Robert C. Bilger, and Hallowell Davis. Factor analysis of cochlear injuries and changes in the electrophysiological potentials following acoustic trauma in the guinea pig. **31**: 123(A)—1959
—— (see Deatherage, Bruce H.). **31**: 122(A), 479—1959
Elfner, Lloyd F. (see Thurlow, Willard R.). **31**: 1337, 1606—1959
Elias, Isidor. Acoustical resonances produced by combustion of a fuel-air mixture in a rectangular duct. **31**: 296—1959

Ellis, A. T. and I. R. Jones. Some physical aspects of cathodic protection against cavitation damage. **31**: 1583(A)—1959
—— (see Jones, I. R.). **31**: 1582(A)—1959
Elpern, Barry S. and Earl D. Schubert. Velocity of transient traveling waves on the basilar membrane. **31**: 124(A)—1959
—— (see Schubert, Earl D.). **31**: 990—1959
Embleton, T. F. W. and I. R. Dagg. Stability of Bruel and Kjaer type 4131 condenser microphones. **31**: 1570(A)—1959
—— **and I. R. Dagg.** Stability of Western Electric microphones. **31**: 852(A)—1959
——, **I. R. Dagg, and G. J. Thiessen.** Upgrading of acceptability criteria for noise in business machine offices. **31**: 849(A)—1959
—— (see Olson, N.). **31**: 852(A)—1959
Ertugrul, Ali (see Wallace, John D.). **31**: 712—1959
Eshleman, Arthur L. (see Belcher, Peter M.). **31**: 125(A)—1959
Evans, R. P. (see Tatge, R. B.). **31**: 117(A)—1959
Ewing, Maurice (see Nafe, John E.). **31**: 131(A)—1959

Fakley, D. C. Comparison between the performances of a time-averaged product array and an intraclass correlator. **31**: 1307—1959
Fand, R. M. and J. Kaye. Hot wire method for visualizing intense stationary sound waves. **31**: 810—1959
Faran, James J., Jr. New portable sound and vibration analyzer. **31**: 843(A)—1959
—— (see Fitzmorris, M. J., Jr.). **31**: 843(A)—1959
Farley, Jane, A. J. Derbyshire, Richard L. Carter, and Peter J. Mills. Psychic factors in hearing loss. **31**: 1585(A)—1959
Farr, H. K. (see Harris, W. T.). **31**: 854(A)—1959
Farrell, W. Ranger. Rockefeller Institute for Medical Research auditorium. **31**: 121(A)—1959
—— **and B. G. Watters.** Speech privacy design analyzer. **31**: 1577(A)—1959
—— **and B. G. Watters.** Study of speech privacy. **31**: 1580(A)—1959
—— (see Kurtze, Gunther). **31**, 833(A)—1959
Farwell, Robert W. (see Marboe, Robert F.). **31**: 1573(A)—1959
Fatehchand, Richard (see Ahmend, Rais). **31**: 1022—1959
Fay, R. D. Spherical waves of finite amplitude. **31**: 1377—1959
Feldstein, Robert. Absorption and propagation velocity of sound in argon. **31**: 1587(A)—1959
Fiala, Walter T. and John K. Hilliard. Electronically modulated air valve. **31**: 1570(A)—1959
—— **and J. K. Hilliard.** High-intensity sound reverberation chamber and loudspeaker noise generator. **31**: 269—1959
Filson, Daniel H. (see Lax, Edward). **31**: 845(A)—1959
Fisher, E. S. (see McSkimin, H. J.). **31**: 1586(A)—1959
Fisher, F. H. Effect of high pressure on sound absorption in a water-dioxane solution of magnesium sulfate. **31**: 848(A)—1959
Fitzmorris, M. J., Jr., J. J. Faran, Jr., and M. W. Basch. New graphic level recorder for acoustic measurements. **31**: 843(A)—1959
Fitzpatrick, H. M. On the presentation of data on fan noise. **31**: 850(A)—1959
Fitzroy, Dariel. Problems presented in the use of acoustical plasters. **31**: 118(A)—1959
—— Reverberation formula which seems to be more accurate with nonuniform distribution of absorption. **31**: 893—1959
—— Reverberation formula which seems to be more accurate with nonuniform distribution of absorption, with field examples of its application. **31**: 118(A)—1959
Flanagan, Gail H. (see Kryter, Karl D.). **31**: 1564(A)—1959
—— (see Licklider, J. C. R.). **31**: 835(A)—1959
Flanagan, James L. Extant problems in analysis-synthesis telephony. **31**: 112(A)—1959
—— **and Newman Guttman.** Pitch of periodic pulses. **31**: 123(A)—1959
—— **and Newman Guttman.** Pitch of periodic pulses without fundamental component. **31**: 836(A)—1959
Fletcher, John L. and A. J. Riopelle. Effect of a loud preexposure tone on TTS resulting from impulse noise. **31**: 831(A)—1959
Flynn, Edward A. (see Shankland, Robert S.). **31**: 866—1959
Flynn, Hugh Guthrie. Physics of acoustic cavitation. **31**: 1582(A)—1959
Forgie, Carma D. (see Forgie, James W.). **31**: 844(A), 1480—1959
Forgie, James W. Use of digital computers in speech analysis and synthesis. **31**: 1563(T)—1959
—— **and Carma D. Forgie.** Results obtained from a vowel recognition computer program. **31**: 844(A), 1480—1959
Fozard, James L., W. Edward Bacon, and Arnold M. Small, Jr. Masked thresholds for octave band noise. **31**: 1681(L)—1959
—— (see Small, Arnold M., Jr.). **31**: 128(A), 508—1959
Franken, Peter A. Atmospheric turbulence as a flight vehicle noise source. **31**: 1581(A)—1959
—— Driving point impedances of cylindrical structures. **31**: 1576(A)—1959
—— Point excitation of a cylindrical shell. **31**: 115(A)—1959
—— **and G. W. Kamperman.** Noise field of a large rocket. **31**: 1581(A)—1959
—— **and Eric E. Ungar.** Noise in space vehicles due to micro meteorite impact. **31**: 1581(A)—1959
—— (see Watters, B. G.). **31**: 117(A)—1959
Franklin, Philip. *An Introduction to Fourier Methods and the Laplace Transformation* reviewed by R. B. Lindsay. **31**: 641—1959
Franz, G. J. Splashes as sources of sound in liquids. **31**: 1080—1959
Fricke, Werner and R. F. Kaminski. Simulation of airborne noise and its effect on components. **31**: 125(A)—1959
Frishkopf, Lawrence S. and Newman Guttman. Effect of prior monaural click on time between critically fused binaural clicks. **31**: 1584(A)—1959
Frosch, R. A. (see Berman, A.). **31**: 838(A)—1959
Fry, William J. (see Dunn, Floyd). **31**: 120(A), 632(L)—1959
Fujimura, Osamu. Review of *The Sound System of Standard Japanese. A Tentative Account from the Teaching Point of View* by F. J. Daniels. **31**: 640—1959
—— Some characteristics of stop consonants. **31**: 1568(A)—1959
—— Some of the current research efforts in Japan in the field of speech science. **31**: 843(A)—1959

Galambos, Robert and Allen Rupert. Action of the middle ear muscles in normal cats. **31**: 349—1959
Gales, Robert S. (see Thompson, Paul O.). **31**: 1579(A)—1959
Gardner, Wallace J. and J. C. R. Licklider. Follow-up report on audio analgesia. **31**: 850(A)—1959
—— **and J. C. R. Licklider.** Serendipitous effects of masking noise upon sensations produced by the dentist's drill. **31**: 117(A)—1959
Garner, W. R. On the lambda loudness function, masking, and the loudness of multicomponent tones. **31**: 602—1959
Garwood, V. P. (see Misrahy, G. A.). **31**: 1575(A)—1959
Gaynor, Frank. *Concise Dictionary of Science* reviewed by F. E. White. **31**: 1390—1959
Gazis, Denos C. Errata: Exact analysis of the plane-strain vibrations of thick-walled hollow cylinders. **31**: 250(L)—1959
—— Three-dimensional investigation of the propagation of waves in hollow circular cylinders. I. Analytical foundation. **31**: 568—1959

—— Three-dimensional investigation of the propagation of waves in hollow circular cylinders. II Numerical results. **31**: 573—1959

Geisler, C. D., C. M. Molnar, W. T. Peake, T. F. Weiss, and T. T. Sandel. Loudness judgments on clicks. **31**: 128(A)—1959

George, W. H. Sound recording and "publication" of acoustical research. **31**: 1030(L)—1959

Gerson, Robert. Losses and ageing in some lead zirconate titanate ceramics. **31**: 854(T)—1959

Gerstman, Louis J. (see Lotz, John). **31**: 1568(A)—1959

Gibbs, N. E. and G. E. Miller. Evaluation of the use of swivel-mass vibrators as sonic generators. **31**: 120(A)—1959

Gibbs, R. M. In-flight noise suppressor development report. **31**: 111(A)—1959

Gilbert, Freeman and Leon Knopoff. Scattering of impulsive elastic waves by a rigid cylinder. **31**: 1169—1959

—— (see Knopoff, Leon). **31**: 1161—1959

Glorig, Aram and Anne Summerfield. Progression of hearing loss as a function of industrial noise exposure. **31**: 124(A)—1959

—— (see Summerfield, Anne). **31**: 124(A)—1959

—— (see Ward, W. Dixon). **31**: 522, 600, 791, 831(A), 1138(L)—1959

Gogos, C. M. (see Kryter, Karl D.). **31**: 1564(A)—1959

Goldberg, Jay M., Betty Ann Dalen, and William D. Neff. Frequency discrimination after section of the brachium of the inferior colliculus. **31**: 1575(A)—1959

Goldstein, M. H., Jr. A physiologist views the theory of signal detectability. **31**: 119(T)—1959

——, **N. Y-S. Kiang, and R. M. Brown.** Responses of the auditory cortex to repetitive acoustic stimuli. **31**: 356—1959

—— (see Kiang, N. Y-S.). **31**: 786—1959

—— (see Peake, W. T.). **31**: 123(A)—1959

Goodfriend, Lewis S. Review of *Industrial Noise Manual* published by American Industrial Hygiene Association. **31**: 541—1959

—— **and R. L. Cardinell.** Preliminary report on noise in hospitals. **31**: 849(A)—1959

Goodman, R. R. Test of the validity of a shell theory for the reflection of sound from thin shells. **31**: 840(A)—1959

Gottenberg, W. G. (see Baltrukonis, J. H.). **31**: 734—1959

Gottlieb, Irving. *Basic Pulses* reviewed by Carl E. Adams. **31**: 257—1959

Gottlieb, Peter. Sound transmission through a velocity discontinuity. **31**: 1036(L)—1959

Gould, R. K. and W. L. Nyborg. Imbedded thermistor for boundary layer measurements. **31**: 249(L)—1959

—— (see Nyborg, W. L.). **31**: 706—1959

Granato, A. V. Interaction of ultrasound and dislocations. **31**: 110(A)—1959

Gravitt, James C. Frequency response of an acoustic air-jet generator. **31**: 1516—1959

Green, David (see Kryter, Karl D.). **31**: 1585(A)—1959

Green, David M. Detection of a pulsed auditory signal in noise as a function of duration and frequency. **31**: 836(A)—1959

—— Detection of a pulsed sinusoid of uncertain frequency. **31**: 1580(A)—1959

——, **Mary J. McKey, and J. C. R. Licklider.** Detection of a pulsed sinusoid in noise as a function of frequency. **31**: 1446—1959

——, **Mary J. McKey, and J. C. R. Licklider.** Detection of gated sinusoids in white noise as a function of frequency. **31**: 126(A)—1959

—— **and John A. Swets.** Analysis of sequential decisions. **31**: 834(A)—1959

——, **Carl Williams, and Karl D. Kryter.** Peak VU deflection and energy for monosyllabic words. **31**: 1264(L)—1959

—— (see Swets, John A.). **31**: 514—1959

Greenberg, Gordon Z. (see Egan, James P.). **31**: 768, 835(A), 1579(A)—1959

Greene, David C. Balanced hydrophone with isolated shield. **31**: 1567(A)—1959

—— Vibration and sound radiation of plates. **31**: 840(A)—1959

Greenspan, Martin. Current status of speed-of-sound measurements in water. **31**: 847(A)—1959

—— Rotational relaxation in nitrogen, oxygen, and air. **31**: 155—1959

—— **and Carroll E. Tschiegg.** Tables of the speed of sound in water. **31**: 75—1959

Greenspon, J. E. Vibrations of thick cylindrical shells. **31**: 1682(L)—1959

Griffin, Donald R. *Listening in the Dark* reviewed by Mark R. Rosenzweig. **31**: 375—1959

Grisaru, M. T. (see Northwood, T. D.). **31**: 595; errata—1141(L)—1959

Grützmacher, M. Traffic noise problems in Germany. **31**: 849(A)—1959

Guelke, R. W. and R. M. J. Huyssen. Development of apparatus for the analysis of sound by the sense of touch. **31**: 799—1959

Guthrie, A. N., I. Tolstoy, and J. Shaffer. Propagation of low frequency cw signals in the deep ocean. **31**: 1572(A)—1959

Gutowski, F. A. (see Carome, E. F.). **31**: 111(A)—1959

Guttman, Newman (see David, E. E., Jr.). **31**: 774—1959

—— (see Flanagan, James L.). **31**: 123(A), 836(A)—1959

—— (see Frishkopf, Lawrence S.). **31**: 1584(A)—1959

Haase, Kurt H. Method for numerical evaluation of the coefficients of Fourier series. **31**: 115(A)—1959

Haberman, William L. Review of *Fluid Dynamics and Heat Transfer* by J. G. Knudsen and D. L. Katz. **31**: 376—1959

Haddle, G. P. and E. J. Skudrzyk. Flow-noise measurements with buoyant units. **31**: 1567(A)—1959

—— (see Skudrzyk, E. J.). **31**: 1567(A)—1959

Hale, F. E. Long-range sound propagation in the deep ocean. **31**: 1572(A)—1959

Hall, J. L. Psychoacoustic study of the mechanism of binaural fusion. **31**: 1584(A)—1959

Hall, Jody C. and Clyde E. Lockwood, Jr. Effect of mutes on cornet tone quality. **31**: 130(A)—1959

—— (see Kent, Earle L.). **31**: 129(A)—1959

Halle, Morris. Review of *An Introduction to the Phonetics of American English* by Charles Kenneth Thomas. **31**: 86—1959

—— (see Capraro, Rene). **31**: 126(A)—1959

Hamme, R. N. Sound transmission through suspended acoustical ceilings over part-height partitions. **31**: 118(T)—1959

Hampton, L. D. and C. M. McKinney. Scattering of acoustic energy from solid metals spheres in water. **31**: 846(A)—1959

Hanson, R. L. Clues to sound localization. **31**: 1584(A)—1959

—— Sound localization. **31**: 830(A)—1959

Harclerode, Jack E. (see Anthony, Adam). **31**: 1437—1959

Hardy, Howard C. Cocktail party acoustics. **31**: 535(L)—1959

—— Effect of partitions on the noise propagation in offices. **31**: 118(A)—1959

—— Field testing for sound transmission. **31**: 834(A)—1959

—— Mechanical noise sources as calibrated noise standards. **31**: 117(A)—1959

—— Source of noise in fans. **31**: 850(A)—1959

Hargrove, L. E. Effects of progressive ultrasonic waves on a narrow light beam. Experimental. **31**: 849(A)—1959

——, **K. L. Zankel, and E. A. Hiedemann.** Effects of a progressive ultrasonic wave on a light beam of arbitrary width. **31**: 1366—1959

Harris, Cyril M. Residual masking at low frequencies. **31**: 1110—1959
—— **and Leonard Kirvida.** Observation concerning the attenuation of elastic waves in the ground. **31**: 1037(L)—1959
—— **and Leonard B. Kirvida.** On the propagation of sound at low frequencies in an inhomogeneous atmosphere. **31**: 111(A)—1959
Harris, Gerard G. Binaural interaction of impulsive stimuli and pure tones. **31**: 1584(A)—1959
Harris, J. Donald. A new pitch scale. **31**: 1565(A)—1959
—— Review of *Audiology: Principles and Practice* by Hayes A. Newby. **31**: 257—1959
—— Review of *Sprachhörprüfmethoden* by Kurt Schubert. **31**: 256—1959
—— (see Pikler, Andrew G.). **31**: 1579(A)—1959
Harris, Katherine S., A. M. Liberman, Jo Ann Kinney, and Harlan Lane. Effect of learning on perception: discrimination of relative onset time of the formants in certain speech and non-speech patterns. **31**: 1569(A)—1959
Harris, W. T., H. K. Farr, C. A. Clark, and E. M. Wise. Magnetostrictive properties of certain cobalt nickel alloys. **31**: 854(A)—1959
Harrison, Mark. Noise due to unsteady flow. **31**: 1566(A)—1959
Hashmi, S. Z. R., S. A. Khan, and I. Ali. Application of counter-chronograph technique to measurement of sonic velocities. **31**: 1384(L)—1959
Haworth, F. E. (see Barney, H. L.). **31**: 844(A)—1959
Hays, Earl E. (see Tschiegg, Carl E.). **31**: 1038(L)—1959
Heaps, H. S. General theory for the synthesis of hydrophone arrays. **31**: 832(A)—1959
Hedrich, A. L. (see McDade, J. C.). **31**: 1380—1959
Heinz, J. M. (see Stevens, K. N.). **31**: 844(A)—1959
Henderson, M. C. and J. Z. Klose. Ultrasonic absorption and thermal relaxation in CO_2. **31**: 29—1959
Herrmann, G. (see Mirsky, I.). **31**: 250(L)—1959
Hickmon, Floyd O., III. Pressure reciprocity calibration of condenser transducers to 50 kc in air. **31**: 1570(A)—1959
Hiedemann, E. A. (see Breazeale, M. A.). **31**: 24—1959
—— (see Hargrove, L. E.). **31**: 1366—1959
—— (see Zankel, K. L.). **31**: 44—1959
Higgs, R. W. and T. A. Litovitz. Measurement of the ultrasonic absorption and velocity in molten salts. **31**: 1586(A)—1959
Hillery, Herbert (see Bohls, Fred). **31**: 131(A)—1959
Hilliard, J. K. (see Fiala, W. T.). **31**: 269, 1570(A)—1959
Himelblau, H. and L. M. Keer. Space requirements for airborne equipment excited by random vibration. **31**: 1582(A)—1959
Hirsh, Ira J. Auditory perception of temporal order. **31**: 759—1959
—— Review of *Perception and Communication* by D. E. Broadbent. **31**: 374—1959
——, **I. Shore, and K. Charan.** Speech perception through different hearing aids. **31**: 1585(A)—1959
—— (see Deatherage, Bruce H.). **31**: 486—1959
Hirtle, Parker W. (see Kurtze, Gunther). **31**: 833(A)—1959
Hixson, E. L. (see Mikeska, E. E.). **31**: 1578(A)—1959
Hixson, W. Carroll (see Black, John W.). **31**: 1384(L)—1959
Hoare, F. E. (see Myers, A.). **31**: 161—1959
Holte, J. E. and R. F. Lambert. Analysis of flared acoustic matching sections. **31**: 116(A)—1959
Hoover, R. M. (see Watters, B. G.). **31**: 117(A)—1959
House, Raymond N. and Jack Kritz. Analytic study of the vibrating free disk. **31**: 1576(A)—1959
Hovorka, Frank (see Booker, Jonathan). **31**: 120(A)—1959
—— (see Penn, Robert). **31**: 1372—1959
—— (see Stuehr, John). **31**: 1586(A)—1959
—— (see Yeager, Ernest). **31**: 848(A)—1959
Howard, C. R. (see Bach, R. E., Jr.). **31**: 853(A)—1959
Howling, D. H. Analysis of a piezoelectric phonograph transducer as a function of the clamping position. **31**: 620—1959
—— Surface and groove noise in disk recording media. I. **31**: 1463—1959
—— Surface and groove noise in disk recording media. II. **31**: 1626—1959
Höy, E. (see Budal, K.). **31**: 1536—1959
Hueter, T. F. Review of cavitation topics presented at the Third International Congress on Acoustics in Stuttgart. **31**: 1583(T)—1959
Hughes, George W. Identification of speech sounds by means of a digital computer. **31**: 113(A)—1959
—— Use of digital computers in speech analysis and synthesis. **31**: 1563(T)—1959
Humphreys, H. R. (see Parkin, P. H.). **31**: 1273—1959
Hunt, F. V. Review of *Vacuum Tube Characteristics* edited by A. Schure. **31**: 541—1959
Hunter, J. L. and H. R. Mull. Acoustic treatment of the Cleveland Public Auditorium. **31**: 1588(A)—1959
Huntley, R. (see Ingard, K. U.). **21**: 76—1959
Huntley, Ralph. Consistency of repeated laboratory measurements of sound transmission loss. **31**: 834(A)—1959
—— (see Sabine, Hale J.). **31**: 1577(A)—1959
Huyssen, R. M. J. (see Guelke, R. W.). **31**: 799—1959

Ingard, K. U., R. Huntley, W. A. Jack, M. B. Summerfield, F. Tyzzer, and R. V. Waterhouse. American standard recommended practice for laboratory measurement of airborne sound transmission loss of building floors and walls. **31**: 76—1959
Ingard, Uno. Attenuation and regeneration of sound in ducts and jet diffusers. **31**: 1202—1959
—— Influence of fluid motion past a plane boundary on sound reflection, absorption, and transmission. **31**: 1035(L)—1959
—— Mode coupling on a string—an example of magnetomechanics of extended systems. **31**: 114(A)—1959
—— Simple examples of magnetomechanical wave motion. **31**: 1033(L)—1959
—— **and George C. Maling, Jr.** Noise generated by two interacting air jets. **31**: 117(A), 1031(L)—1959
—— (see Mintz, Michael D.). **31**: 115(A)—1959
Ingemann, Frances (see Liberman, A. M.). **31**: 109(A), 1490—1959
—— (see Lotz, John). **31**: 1568(A)—1959
Innis, George and Tom Owen. Comparative study of three types of cylindrical reflectors for narrow beam sonar transducers. **31**: 131(A)—1959

Jack, W. A. (see Ingard, K. U.). **31**: 76—1959
Jackson, Francis J. and Wesley L. Nyborg. Small scale acoustic streaming near a vibrating piston opposite a rigid boundary. **31**: 846(A)—1959
—— (see Nyborg, W. L.). **31**: 706—1959
Jacobson, Melvin J. Correlation of a finite distance point source. **31**: 448—1959
—— **and Robert J. Talham.** Use of pressure gradient receivers in a correlator receiving system. **31**: 1352—1959
Jarman, P. and R. W. B. Stephens. Ultrasonic luminescence. **31**: 1582(T)—1959
Jeffress, Lloyd A. (see Craig, James H.). **31**: 1584(A)—1959
—— (see Diercks, K. Jerome). **31**: 1584(A)—1959
—— (see Moushegian, George). **31**: 830(A), 1441—1959
Jerger, James F. and Tom W. Tillman. Effect of earphone cushion on auditory threshold. **31**: 1264(L)—1959
Johnson, F. Russell, Leo L. Beranek, and David L. Klepper. Orchestra enclosure for the Henry and Edsel Ford Auditorium in Detroit, Michigan. **31**: 1588(A)—1959

——, **L. L. Beranek, R. B. Newman, R. H. Bolt, and D. L. Klepper.** Orchestra enclosure for the Tanglewood Music Shed. **31**: 1587(A)—1959
—— (see Newman, R. B.). **31**: 1587(A)—1959
Johnson, Lawrence B. (see Pollack, Irwin). **31**: 7—1959
Jones, I. R. and A. T. Ellis. Experimental investigation of cavity collapse pressures. **31**: 1582(A)—1959
—— (see Ellis, A. T.). **31**: 1583(A)—1959
Jorgensen, Finn (see Veneklasen, Paul S.). **31**: 842(A)—1959

Kahlbau, J. V. (see Mikeska, E. E.). **31**: 1578(A)—1959
Kahn, J. Steven (see Dietz, Frank T.). **31**: 837(A)—1959
Kaminski, R. K. (see Fricke, Werner). **31**: 125(A)—1959
Kamperman, G. W., C. H. Allen, J. R. Sharp, and L. Williams. Sonic failure research facility. **31**: 1570(A)—1959
—— **and D. N. Keast.** Acoustic instrumentation for measurements in the Minuteman silo. **31**: 1571(A)—1959
—— (see Franken, P. A.). **31**: 1581(A)—1959
Kamps, Edwin C. Statistical evaluation of near-field sound pressures generated by the exhaust of a high-performance jet engine. **31**: 65—1959
Karal, Frank C., Jr., and Joseph B. Keller. Elastic wave propagation in homogeneous and inhomogeneous media. **31**: 694—1959
Karplus, Henry B. Propagation of pressure waves of finite amplitude in boiling water. **31**: 840(A)—1959
Karpovich, John. Practical and experimental aspects of cavitation. **31**: 1583(A)—1959
Katz, D. L. (see Knudsen, J. G.). **31**: 376—1959
Kaye, J. (see Fand, R. M.). **31**: 810—1959
Keast, David N. Calibration of accelerometers in a simulated space environment. **31**: 584—1959
—— (see Kamperman, G. W.). **31**: 1571(A)—1959
—— (see Wiener, Francis M.). **31**: 724—1959
Keer, L. M. (see Himelblau, H.). **31**: 1582(A)—1959
Keller, Joseph B. (see Karal, Frank C., Jr.). **31**: 694—1959
—— (see Seckler, Bernard D.) **31**: 192, 206—1959
Kellogg, W. N. Auditory perception of submerged objects by porpoises. **31**: 1—1959
Kelsey, Patricia A. Intelligibility of natural and distorted speech led through ten hearing aids to normal and to deafened individuals. **31**: 1585(A)—1959
Kent, Earle L., Jody C. Hall, and Richard P. Lazure. Characteristics of clarinet tones. **31**: 129(A)—1959
—— **and Richard P. Lazure.** Studies of cup-mouthpiece tone quality. **31**: 130(A)—1959
Kerwin, Edward M., Jr. Damping of flexural waves by a constrained viscoelastic layer. **31**: 952—1959
—— Ideal spaced damping treatments for flexural waves. **31**: 846(A)—1959
—— **and Donald Ross.** Comparison of the vibration damping effectiveness of free and constrained viscoelastic layers. **31**: 1578(A)—1959
Khan, S. A. (see Hashmi, S. Z. R.). **31**: 1384(L)—1959
Kiang, N. Y-S. and M. H. Goldstein, Jr. Tonotopic organization of the cat auditory cortex for some complex stimuli. **31**: 786—1959
—— (see Goldstein, M. H., Jr). **31**: 356—1959
—— (see Peake, W. T.). **31**: 123(A)—1959
Kikuchi, Yoshimitsu and Hiroshi Shimizu. On the variation of acoustic radiation resistance in water under ultrasonic cavitation. **31**: 1385(L)—1959
Kinney, Jo Ann (see Harris, Katherine S.). **31**: 1569(A)—1959
Kirchman, E. J. Riveting noise study. **31**: 117(A)—1959
Kirk, Roger E. Tuning preferences for piano unison groups. **31**: 1565(A), 1644—1959
Kirvida, Leonard B. (see Harris, Cyril M.). **31**: 111(A), 1037(L)—1959
Kleinschmidt, K. (see Ehrlich, S. L.). **31**: 854(A)—1959
Kleinschmidt, Robert B. 1910—1959. 31: 1270—1959
Klepper, David L. Acoustical design of the First Presbyterian Church, Stamford, Connecticut. **31**: 121(A), 879—1959
—— (see Johnson, F. Russell). **31**: 1587(A), 1588(A)—1959
Klose, J. Z. (see Henderson, M. C.). **31**: 29—1959
Klump, Roy G. (see Webster, John C.). **31**: 129(A), 795—1959
Knaff, P. Robert and Irwin Pollack. Analysis of the functions served by a loud auditory signal in maintaining alertness. **31**: 122(A)—1959
Knoll, Max. *Materials and Processes of Electron Devices* reviewed by Carl E. Adams. **31**: 1274—1959
Knopoff, Leon and Freeman Gilbert. First motion methods in theoretical seismology. **31**: 1161—1959
—— (see Gilbert, Freeman). **31**: 1169—1959
Knudsen, J. G. and D. L. Katz. *Fluid Dynamics and Heat Transfer* reviewed by William L. Haberman. **31**: 376—1959
Kobrak, Heinrich G. *The Middle Ear* reviewed by Merle Lawrence. **31**: 1042—1959
Koenig, R. J. Noise control measures for the Convair jetliners. **31**:112(A)—1959
Koidan, Walter and Earl D. Schubert. References to contemporary papers on acoustics. **31**: 87, 377, 641, 1043, 1275, 1542—1959
Kopra, Lennart L. Day-to-day stability of the auditory threshold in noise-exposed and non-noise-exposed Air Force personnel. **31**: 831(A)—1959
Kornhauser, Edward T. Review of *Conductance Curve Design Manual* by K. A. Pullen, Jr. **31**: 87—1959
—— Review of *Impedance Matching* edited by Alexander Schure. **31**: 86—1959
—— Review of *Microwave Transmission Design Data* by Theodore Moreno. **31**: 87—1959
Koyasu, Masaru (see Sato, Kozi). **31**: 628(L)—1959
Krautkopf, David W. Grain boundary scattering in copper and brass. **31**: 846(A)—1959
—— **and Eugen J. Skudrzyk.** Pulse propagation in rods. **31**: 111(A)—1959
Krishnan, R. S. *Progress in Crystal Physics, Vol. I, (Thermal, Elastic, and Optical Properties)* reviewed by Warren P. Mason. **31**: 376—1959
Kritz, Jack. High efficiency transducer for transmission to air. **31**: 1570(A)—1959
—— (see House, Raymond N.). **31**: 1576(A)—1959
Krugman, Leonard. *Fundamentals of Transistors* reviewed by B. B. Bauer. **31**: 257—1959
Kryter, Karl D. Scaling human reactions to the sound from aircraft. **31**: 1415—1959
——, **Leo L. Beranek, and Laymon N. Miller.** Subjective evaluation of noise from aircraft. **31**: 112(T)—1959
——, **Francis M. Wiener, C. M. Gogos, and Gail Flanagan.** Effects of multiple, narrow pass band filtering on the intelligibility of speech. **31**: 1564(A)—1959
——, **Carl Williams, and David Green.** Auditory acuity and speech communications. **31**: 1585(A)—1959
—— (see Doelling, Norman). **31**: 850(A)—1959
—— (see Green, David M.). **31**: 1264(L)—1959
Kurtze, Günther. Bending wave propagation in multilayer plates. **31**: 115(A), 1183—1959
—— Cavitation generated by single underpressure pulses. **31**: 119(A)—1959
——, **W. Ranger Farrell, Bill G. Watters, and Parker W. Hirtle.** Lightweight walls having high transmission loss. **31**: 833(A)—1959
—— **and B. G. Watters.** New wall design for high transmission loss or high damping. **31**: 739—1959
—— **and B. G. Watters.** Sound transmission characteristics of a layered wall construction. **31**: 833(A)—1959

Ladefoged, Peter (see Broadbent, Donald E.). **31**: 1539(L)—1959

Lamb, George L., Jr. Diffraction of a plane sound wave by a semi-infinite thin elastic plate. **31**: 929—1959
Lambert, R. F. (see Holte, J. E.). **31**: 116(A)—1959
Lamport, Harold and Hans H. Zinsser. Strain gauge measurement of output of magnetostrictive ultrasonic transducer—pitfalls of optical measurement. **31**: 435—1959
Lane, Harlan (see Harris, Katherine S.). **31**: 1569(A)—1959
Lane, R. N. Acoustic treatment and sound system for coliseum, Corpus Christi, Texas. **31**: 121(A)—1959
—— **and E. E. Mikeska.** Measured noise transmission characteristics of lightweight partitions used in recently constructed music buildings. **31**: 1577(A)—1959
—— (see Mikeska, E. E.). **31**: 121(A), 857—1959
Lang, William W. Approximation of source strengths of radiating surfaces by vibration measurement. **31**: 1576(A)—1959
—— Equivalent circuit representation of a flexible, porous medium. **31**: 115(A)—1959
—— Optimized absorption of sound by a flexible, porous medium. **31**: 851(A)—1959
Larson, Larry G. and Edward D. Berglund. Effect of gas content in media on ultrasonic cleaning. **31**: 247(L)—1959
Lawrence, Merle. Review of *The Middle Ear* by Heinrich G. Kobrak. **31**: 1042—1959
Lawrie, William E. High-temperature acoustical properties of materials. **31**: 851(A)—1959
Lax, Edward and Daniel H. Filson. Second low-temperature peak in the internal friction of aluminum. **31**: 845(A)—1959
Lazure, Richard P. (see Kent, Earle L.). **31**: 129(A), 130(A)—1959
Leakey, D. M. Some measurements on the effects of interchannel intensity and time differences in two channel sound systems. **31**: 977—1959
Le Caine, Hugh and John M. Bowsher. Tape-recorder for creative use in an electronic music studio. **31**: 839(A)—1959
LeCorbeiller, P. Review of *Dynamical Analogies* by Harry F. Olson. **31**: 821—1959
Lee, Owen S. Preliminary investigation of internal waves and underwater sound. **31**: 838(A)—1959
Legget, R. F. and T. D. Northwood. Noise surveys of cocktail parties. **31**: 850(A)—1959
Legouix, J. P. and S. Tarab. Experimental study of bone conduction in ears with mechanical impairment of the ossicles. **31**: 1453—1959
Lehiste, Ilse. Acoustical clues to word boundaries. **31**: 844(A)—1959
—— **and G. E. Peterson.** Intrinsic duration of syllable nuclei in English. **31**: 1569(A)—1959
—— **and Gordon E. Peterson.** Linguistic considerations in the study of speech intelligibility. **31**: 280—1959
—— **and Gordon E. Peterson.** Vowel amplitude and phonemic stress in American English. **31**: 110(A), 428—1959
—— (see Peterson, Gordon E.). **31**: 844(A), 1569(A)—1959
Leonard, R. W. Propagation of shear waves in Teflon. **31**: 1587(A)—1959
Levitan, Edwin S. Forced oscillation of a spring-mass system having combined Coulomb and viscous damping. **31**: 1576(A)—1959
Levy, Sidney E., George W. Sioles, Victor Brociner, and Richard W. Carlisle. Listener reaction to stereophonic reproduction by reflected sound. **31**: 1256—1959
Lewis, David H. (see Wallace, John D.). **31**: 712—1959
Lewis, R. C. Techniques and pitfalls in random vibration testing. **31**: 847(T)—1959
Liberman, A. M., Frances Ingemann, Leigh Lisker, Pierre Delattre, and F. S. Cooper. Minimal rules for synthesizing speech. **31**: 109(A), 1490—1959
—— (see Bastian, Jarvis). **31**: 1568(A)—1959
—— (see Brandauer, Carl M.). **31**: 1569(A)—1959
—— (see Harris, Katherine S.). **31**: 1569(A)—1959
Licklider, J. C. R. Theory of signal detectability in audition. **31**: 119(T)—1959
—— **and G. H. Flanagan.** Aural detection of a gated sinusoid as a function of its duration. **31**: 835(A)—1959
—— (see Gardner, Wallace J.). **31**: 117(A), 850(A)—1959
—— (see Green, David M.). **31**: 126(A), 1446—1959
Liberman, Philip. Some acoustic correlates of word stress in American English. **31**: 844(A)—1959
Liebermann, Leonard. Resonance absorption and molecular crystals. II. Benzene. **31**: 1073—1959
Lindsay, R. B. Review of *An Introduction to Fourier Methods and the Laplace Transformation* by Philip Franklin. **31**: 641—1959
—— Review of *Introduction to Symbolic Logic and Its Applications* by Rudolf Carnap. **31**: 640—1959
—— Review of *Introduction to the Theory of Sound Transmission* by C. B. Officer. **31**: 1273—1959
—— Review of *Tables of Modified Quotients of Bessel Functions of the First Kind for Real and Imaginary Arguments* by Morio Onoe. **31**: 376—1959
—— Review of *Theory of Relativity* by W. Pauli. **31**: 1274—1959
—— Review of *The Practical Dictionary of Electricity and Electronics* by R. L. Oldfield. **31**: 641—1959
—— Review of *The Upper Atmosphere* by H. S. W. Massey and R. L. F. Boyd. **31**: 1274—1959
Lisker, Leigh (see Liberman, A. M.). **31**: 109(A), 1490—1959
Litovitz, T. A. Ultrasonic spectroscopy in liquids. **31**: 681—1959
—— (see Higgs, R. W.). **31**: 1586(A)—1959
Lloyd, James A. (see Anthony, Adam). **31**: 1430—1959
Lockwood, Clyde E., Jr., (see Hall, Jody C.). **31**: 130(A)—1959
Loda, Charles J. Information processing and acoustic systems. **31**: 130(A)—1959
Loeb, Michel and Arthur J. Riopelle. Influence of loud contralateral stimulation on the threshold for lower frequency tones. **31**: 831(A)—1959
Lomask, Morton R. Acoustic measurements in deep water using the Bathyscaphe. **31**: 837(A)—1959
—— **and R. Alfred Saenger.** Ambient noise levels in a deep inland lake under exceptionally calm surface conditions. **31**: 837(A)—1959
Lott, G. B. and R. E. Bland. Vibration measurements of a cylindrical shell in air and water. **31**: 1577(A)—1959
Lotz, John, Arthur S. Abramson, Louis J. Gerstman, Frances Ingemann, and William J. Nemser. Voicing cues: perception of stop consonants after removal of a preceding fricative. **31**: 1568(A)—1959
Lyon, Richard H. On the diffusion of sound waves in a turbulent atmosphere. **31**: 1176—1959
—— Response of nonlinear strings to random force fields. **31**: 115(A)—1959

Mackenzie, K. V. Formulas for the computation of sound velocity in sea water. **31**: 131(A)—1959
—— Long-range sound propagation in shallow water. **31**: 1573(A)—1959
—— Long-range sound reverberation in shallow water. **31**: 1573(A)—1959
—— Reflection of sound from coastal bottoms. **31**: 131(A)—1959
Mackinnon, L. (see Myers, A.). **31**: 161—1959
MacLean, William R. On the acoustics of cocktail parties. **31**: 79—1959
Macpherson, P. A. and D. B. Thrasher. "Near field" study of a jet-engine noise. **31**: 1580(A)—1959
Maglieri, Domenic J. Shielding flap type jet engine noise suppressor. **31**: 420—1959

Maling, George C., Jr. Effect of a plane on the power output of a monopole. **31**: 115(A)—1959
—— (see Ingard, Uno). **31**: 117(A), 1031(L)—1959
Malme, Charles I. and Kenneth N. Stevens. Detectability of small irregularities in a broad-band noise spectrum. **31**: 129(A)—1959
Marboe, Robert F. and Robert W. Farwell. Absorption and reflection characteristics of a water-filled anechoic tank. **31**: 1573(A)—1959
Mariner, T. Theory of sound transmission through suspended ceilings over partitions. **31**: 1677(A)—1959
Marks, Graham W. Dependence of acoustic velocity in some aqueous hydroxide solutions on temperature and concentration. **31**: 848(A)—1959
—— Variation of acoustic velocity with temperature in aqueous solutions of certain inorganic sulfates. **31**: 936—1959
Martner, J. G. (see Arnold, J. S.). **31**: 217—1959
Mason, Warren P. Review of *Progress in Crystal Physics, Vol. I, (Thermal, Elastic, and Optical Properties)* by R. S. Krishnan. **31**: 376—1959
Massey, H. S. W. and R. L. F. Boyd. *The Upper Atmosphere* reviewed by R. B. Lindsay. **31**: 1274—1959
Mathews, Max V. Extremal coding for speech transmission. **31**: 113(A)—1959
—— Use of digital computers in speech analysis and synthesis. **31**: 1563(T)—1959
—— **and E. E. David, Jr.** On signal detection, signal perception, and ideal observers. **31**: 834(A)—1959
—— (see David, E. E., Jr.). **31**: 113(A)—1959
—— (see Miller, Joan E.). **31**: 109(A), 1564(A)—1959
Mawardi, Osman K. Acoustic Čerenkov effect. **31**: 839(A)—1959
—— Magnetohydrodynamic wave guide. **31**: 840(A)—1959
—— On the imperfect problems of acoustics. **31**: 851(A)—1959
May, J. (see Tolstoy, I.). **31**: 1572(A)—1959
Mayes, William H. Some near- and far-field noise measurements for rocket engines operating at different nozzle pressure ratios. **31**: 1013—1959
McDade, J. C., D. R. Pardue, A. L. Hedrich, and F. Vrataric. Sound velocity in water above 212°F. **31**: 1380—1959
McDonald, Henry S. Note on low-pass filters for retrieving sampled speech signals. **31**: 1563(A)—1959
—— (see David, E. E., Jr.). **31**: 113(A)—1959
McKey, Mary J. (see Green, David M.). **31**: 126(A), 1446—1959
McKey, Molly J. (see Swets, John A.). **31**: 514—1959
McKinney, C. M. (see Barnard, G. R.). **31**: 1566(A)—1959
—— (see Hampton, L. D.). **31**: 846(A)—1959
McLaren, Norman. Synthesis of sound on film. **31**: 839(A)—1959
McLeroy, E. G. Ray analysis of low-frequency sound propagation in shallow water. **31**: 131(A)—1959
McSkimin, H. J. Measurement of ultrasonic wave velocities and elastic moduli for small solid specimens at high temperatures. **31**: 111(A), 287—1959
—— Performance of high frequency barium titanate transducers for generating ultrasonic waves in liquids. **31**: 854(A), 1519—1959
—— **and E. S. Fisher.** Measurement of the adiabatic elastic moduli of alpha uranium as a function of temperature. **31**: 1586(A)—1959
—— (see Anderson, O. L.). **31**: 848(A)—1959
Mechler, M. V. Line hydrophone with frequency dependent beam steering. **31**: 1567(A)—1959
Medcof, M. A. (see Northwood, T. D.). **31**: 595; errata—1141(L)—1959
Medwin, H. (see Yingling, A.). **31**: 131(A)—1959
Metzgar, K. J. (see Tillou, F. M.). **31**: 126(A)—1959
Meyer, Max F. "Difference tones": a false term endlessly perpetuated. **31**: 1030(L)—1959
—— Masking: Why restrict it to the threshold level? **31**: 243(L)—1959
Meyer, Norman J. Multiple vibrational relaxation in gaseous CH_2Br_2. **31**: 1586(A)—1959
Michael, Stanley H. Patent 2,812,382. High-fidelity amplifying apparatus. **31**: 391—1959
Mikeska, E. E., E. L. Hixon, and J. V. Kahlbau. Acoustic filters for liquid piping systems. **31**: 1578(A)—1959
—— **and R. N. Lane.** Acoustical problems in two round churches. **31**: 121(A), 857—1959
—— (see Lane, R. N.). **31**: 1577(A)—1959
Miller, G. E. (see Gibbs, N. E.). **31**: 120(A)—1959
Miller, Harry B. Stereophonic-binaural compromise system. **31**: 630(L)—1959
Miller, James D. and Charles S. Watson. Minimum audible field of the cat. **31**: 1574(A)—1959
—— **and Charles S. Watson.** Permanent deafness after continuous and spaced exposures to noise. **31**: 1574(A)—1959
——, **C. S. Watson, C. D. Anderson, and W. P. Covell.** Temporary and persistent threshold shifts for the cat. **31**: 1574(A)—1959
Miller, Joan E., M. V. Mathews, and E. E. David, Jr. Pitch synchronous spectral analysis of vowel sounds. **31**: 1564(A)—1959
——, **Max V. Mathews, and E. E. David, Jr.** Study of perception of phase alterations in speech spectra. **31**: 109(A)—1959
Miller, Laymon N. (see Kryter, Karl D.). **31**: 112(T)—1959
Miller, R. L. Nature of the vocal cord wave. **31**: 667—1959
Mills, A. William. Review of *Man's World of Sound* by John R. Pierce and Edward E. David, Jr. **31**: 256—1959
—— Thresholds for interaural difference in intensity. **31**: 830(A)—1959
Mills, Peter J., Arthur J. Derbyshire, and Richard C. Carter. Area under the EEG trace as a measure of changes evoked by auditory stimuli. **31**: 122(A)—1959
—— (see Farley, Jane). **31**: 1585(A)—1959
—— (see Norkus, Frank J.). **31**: 842(A)—1959
Mintz, Michael D. and Uno Ingard. Experiments on scattering of sound by turbulence. **31**: 115(A)—1959
Mirsky, I. and G. Herrmann. Nonaxially symmetric motions of cylindrical shells. **31**: 250(L)—1959
Miskolczy-Fodor, F. Relation between loudness and duration of tonal pulses. I. Response of normal ears to pure tones longer than click-pitch threshold. **31**: 1128—1959
Misrahy, G. A., J. F. Spradley, and A. V. Beran. "Oxidative" microelectrodes: a technic for measuring metabolism and permeability in cochlear scalae. **31**: 1575(A)—1959
——, **J. F. Spradley, A. V. Beran, and V. P. Garwood.** Cerebellar acoustic pathways in unanesthetized cats. **31**: 1575(A)—1959
Mollö-Christensen, Erik. Jet noise generation and suppression. **31**: 850(A)—1959
Molnar, C. M. (see Geisler, C. D.). **31**: 128(A)—1959
Moore, R. A. (see Bhatia, A. B.). **31**: 1140(L)—1959
Moore, R. T. (see Urick, R. J.). **31**: 130(A)—1959
Moreno, Theodore, *Microwave Transmission Design Data* reviewed by Edward T. Kornhauser. **31**: 87—1959
Morrill, S. N. (see Tolhurst, G. C.). **31**: 850(A)—1959
Morris, Alan (see Bruel, Per V.). **31**: 1570(A)—1959
Morrow, Charles T. Application of the mechanical impedance concept to shock and vibration testing. **31**: 1581(A)—1959
—— Design of equipment to withstand shock and vibration. **31**: 1581(A)—1959
—— Random vibration. **31**: 847(A)—1959
Morse, R. W. Interaction of sound waves with electrons in metals. **31**: 110(A)—1959

—— **and H. V. Bohm.** Some ultrasonic measurements in normal and superconducting aluminum. **31**: 1523—1959
Moushegian, George and Lloyd A. Jeffress. Localization of low-frequency tones. **31**: 830(A)—1959
—— **and Lloyd A. Jeffress.** Role of interaural time and intensity differences in the lateralization of low-frequency tones. **31**: 1441—1959
Mowry, Jack (see Bruel, Per V.). **31**: 1570(A)—1959
Mull, H. R. (see Hunter, J. L.). **31**: 1588(A)—1959
Mull, Harold R. Effect of jet structure on noise generation by supersonic nozzles. **31**: 147—1959
Muncey, R. W. and A. F. B. Nickson. Acoustics of the Sidney Myer Music Bowl, Melbourne, Australia. **31**: 1587(A)—1959
—— (see Nickson, A. F. B.). **31**: 1587(A)—1959
Mundie, J. R., H. E. von Gierke, and W. R. Rebbin. Measurement of the acoustical impedance of the guinea pig's ear. **31**: 841(A)—1959
Murphy, S. R. (see Potter, D. S.). **31**: 845(A)—1959
Myers, A., L. Mackinnon, and F. E. Hoare. Modifications to standard pulse techniques for ultrasonic velocity measurements. **31**: 161—1959

Nafe, John E., George B. Tirey, and Maurice Ewing. Sonic depth recording of bubble cluster migration from underwater explosions. **31**: 131(A)—1959
Nakata, Kazuo. Synthesis and perception of nasal consonants. **31**: 661—1959
Neff, William D. (see Goldberg, Jay M.). **31**: 1575(A)—1959
Nemser, William J. (see Lotz, John). **31**: 1568(A)—1959
Nettleton, R. E. Compressional relaxation in liquids. **31**: 557—1959
Newby, Hayes A. *Audiology: Principles and Practice* reviewed by J. Donald Harris. **31**: 257—1959
Newman, R. B., F. R. Johnson, and W. J. Cavanaugh. Sidney Myer Music Bowl, Melbourne, Australia. **31**: 1587(A)—1959
—— (see Johnson, F. R.). **31**: 1587(A)—1959
Nichols, W. H. (see Carome, E. F.). **31**: 1586(A)—1959
Nickson, A. F. B. and R. W. Muncey. Audience and room acoustics. **31**: 1587(A)—1959
—— (see Muncey, R. W.). **31**: 1587(A)—1959
Niemoeller, Arthur F. Reply to "Calibration of two transducers assumed identical." **31**: 814(L)—1959
Nixon, Charles W. and H. E. von Gierke. Experiments on the bone-conduction threshold in a free sound field. **31**: 1121—1959
—— (see von Gierke, H. E.). **31**: 127(A)—1959
Nixon, James (see Summerfield, Anne). **31**: 124(A)—1959
Norkus, Frank J., A. J. Derbyshire, and Peter J. Mills. Frequency shifts in the EEG as indication of response to auditory stimulation. **31**: 842(A)—1959
Northrop, J. and A. Berman. Correlation of some SOFAR arrivals in the western North Atlantic. **31**: 838(A)—1959
Northwood, T. D., M. T. Grisaru, and M. A. Medcof. Absorption of sound by a strip of absorptive material in a diffuse sound field. **31**: 595; errata—1141(L)—1959
——(see Legget, R. F.). **31**: 850(A)—1959
Nyborg, Wesley L. Review of *International Conference of Ultrasonics in Medicine* published by Williams and Wilkins. **31**: 85—1959
—— Review of *Zur Wirkung von Ultraschall auf die Keimung und Entwicklung von Pflanzen und auf den Verlauf von Pflanzenkrankheiten* by W. L. Nyborg. **31**: 821—1959
——, **R. K. Gould, F. J. Jackson, and Carl E. Adams.** Sonically induced microstreaming applied to a surface reaction. **31**: 706—1959
—— (see Brackenridge, J. B.). **31**: 114(A)—1959
——(see Gould, R. K.). **31**: 249(L)—1959
—— (see Jackson, Francis J.). **31**: 846(A)—1959

Obrecht, Dean H. Some acoustic correlates of velarization in Lebanese Arabic. **31**: 1568(A)—1959
O'Brien, Cyril C. Phenomenal tonal memory covering retention between 64 and 3072 cps. **31**: 126(A)—1959
Oestreicher, Hans L. (see Cheever, Richard N.). **31**: 845(A)—1959
—— (see von Gierke, H. E.). **31**: 116(A)—1959
Officer, C. B. *Introduction to the Theory of Sound Transmission* reviewed by R. B. Lindsay. **31**: 1273—1959
O'Hara, George J. Impedance and shock spectra. **31**: 846(A), 1300—1959
Oldfield, R. L. *The Practical Dictionary of Electricity and Electronics* reviewed by R. B. Lindsay. **31**: 641—1959
Olney, Benjamin. Procedure in auditorium design. **31**: 122(A)—1959
Olsen, H. (see Budal, K.). **31**: 1536—1959
Olson, Harry F. Acoustoelectronic auditorium. **31**: 121(A), 872—1959
—— *Dynamical Analogies* reviewed by P. LeCorbeiller. **31**: 821—1959
—— Review of *Techniques of Magnetic Recording* by Joel Tall. **31**: 87—1959
—— **and Herbert Belar.** Time compensation for speed of talking in speech recognition machines. **31**: 845(A)—1959
——, **H. Belar, and J. Timmens. Electronic music synthesis.** **31**: 1565(A)—1959
Olson, N., G. J. Thiessen, E. A. G. Shaw, and T. F. W. Embleton. Anechoic chamber of the National Research Council of Canada. **31**: 852(A)—1959
Onoe, Morio. *Tables of Modified Quotients of Bessel Functions of the First Kind for Real and Imaginary Arguments* reviewed by R. B. Lindsay. **31**: 376—1959
Ormestad, Helmut J., Robert S. Shankland, and Arthur H. Benade. Reverberation time characteristics of Severance Hall. **31**: 1588(A)—1959
Oslo University Press, publisher. *Proceedings of the Eighth International Congress of Linguists* reviewed by Kenneth N. Stevens. **31**: 1274—1959
Otterman, Joseph. Finite-amplitude propagation effect on shock-wave travel times from explosions at high altitudes. **31**: 470—1959
Owen, Tom (see Innis, George). **31**: 131(A)—1959

Papadakis, Emmanuel P. Correction for diffraction losses in the ultrasonic field of a piston source. **31**: 150—1959
Pardue, D. R. (see McDade, J. C.). **31**: 1380—1959
Parfitt, G. G. (see Snowdon, J. C.). **31**: 967—1959
Parkin, P. H. and H. R. Humphreys. *Acoustics, Noise and Buildings* reviewed by Leo L. Beranek. **31**: 1273—1959
Paslay, Paul R. (see Saunders, Herbert). **31**: 579, 1577(A)—1959
Pauli, W. *Theory of Relativity* reviewed by R. B. Lindsay. **31**: 1274—1959
Peake, W. T., M. H. Goldstein, Jr., and N. Y-S. Kiang. "Steady-state" auditory nerve potentials for different stimulus repetition rates. **31**: 123(A)—1959
—— (see Geisler, C. D.). **31**: 128(A)—1959
Pedinoff, Melvin E. Absorption of ultrasonic waves in rotational isomer liquids of the ring type. **31**: 848(A)—1959
Penhallow, William S. and Gerald A. Brigham. Progress in developing a method of analyzing the mechanical and acoustic response of complex structures. **31**: 840(A)—1959
Penn, Robert, Ernest Yeager, and Frank Hovorka. Effect of ultrasonic waves on concentration gradients. **31**: 1372—1959
Peris, Thomas A. (see Rule, Eric). **31**: 1457—1959

Peters, Robert W. Multidimensional scaling approach to the determination of basic physchological parameters for pure tones. **31**: 1578(A)—1959
Peterson, Gordon E. and Ilse Lehiste. Diphthongs, glides, and transitions. **31**: 1569(A)—1959
—— **and Ilse Lehiste.** Identification of filtered vowels. **31**: 844(A)—1959
—— **and D. L. Subrahmanyam.** Evaluation of time-frequency scanning for narrow-band speech transmission. **31**: 113(A)—1959
—— (see Lehiste, Ilse). **31**: 110(A), 280, 428, 1569(A)—1959
Peterson, H. L. Handling, visual selection, and analysis of digital data using a digital computer. **31**: 1567(A)—1959
Pettie, C. Robert. Auditory vigilance by experienced listeners to a 1 kc pip in white noise. **31**: 1579(A)—1959
Pickett, J. M. Backward masking. **31**: 1613—1959
—— Backward masking by an intense burst of noise. **31**: 127(A)—1959
—— Low-frequency noise and methods for calculating speech intelligibility. **31**: 1259—1959
—— Speech intelligibility in low-frequency noise. **31**: 853(A)—1959
—— (see Pollack, Irwin). **31**: 14—1959
Pierce, John R. and Edward E. David, Jr. *Man's World of Sound* reviewed by A. William Mills. **31**: 256—1959
Piercy, J. E. Separation of temperature and pressure effects in ultrasonic relaxations in liquids by solution measurements. **31**: 848(A)—1959
Pikler, Andrew G. Synchronization of music by juxtaposition on dual-channel tapes. **31**: 812(L)—1959
—— **and J. Donald Harris.** Relation between the compensatory and pursuit modes of display in auditory tracking of loudness. **31**: 1579(A)—1959
Pirodda, E. (see Zwislocki, J.). **31**: 9—1959
Pister, Karl S. Flexural vibration of thin laminated plates. **31**: 233—1959
Plomp, R. and M. A. Bouman. Relation between hearing threshold and duration for tone pulses. **31**: 749—1959
Pollack, Irwin. Binaural communication systems: preliminary examination. **31**: 81(L)—1959
—— Identification of elementary auditory displays and the method of recognition memory. **31**: 1126—1959
—— Message repetition and message reception. **31**: 853(A), 1509—1959
—— Message uncertainty and message reception. **31**: 110(A), 1500—1959
—— On indices of signal and response discriminability. **31**: 1031(L)—1959
—— Temporal sampling parameters of interaural correlation. **31**: 1583(A)—1959
—— **and Lawrence B. Johnson.** Reproduction and identification of elements of auditory displays. **31**: 7—1959
—— **and J. M. Pickett.** Intelligibility of peak-clipped speech at high noise levels. **31**: 14—1959
——, **Herbert Rubenstein, and Louis Decker.** Intelligibility of known and unknown message sets. **31**: 273—1959
—— **and W. J. Trittipoe.** Binaural listening and interaural noise cross correlation. **31**: 1250—1959
—— **and William Trittipoe.** Interaural noise correlations: examination of variables. **31**: 1616—1959
——(see Decker, Louis R.). **31**: 1327—1959
—— (see Knaff, P. Robert). **31**: 122(A)—1959
—— (see Trittipoe, William). **31**: 127(A)—1959
Potter, D. S. and S. R. Murphy. Investigation of the shadow zone for a particular sound velocity variation. **31**: 845(A)—1959
Powell, Alan. Considerations concerning an upper limit to jet noise reduction. **31**: 1138(L)—1959
—— On the aerodynamic noise of a rigid flat plate moving at zero incidence. **31**: 1649—1959
——. Propagation of a pressure pulse in a compressible flow. **31**: 840(A), 1527—1959
—— Similarity and turbulent jet noise. **31**: 812(L)—1959
Poza, F. (see Bell, C. G.). **31**: 1563(A)—1959
Pullen, K. A., Jr. *Conductance Curve Design Manual* reviewed by Edward T. Kornhauser. **31**: 87—1959
Purcell, Jack B. C. Sounds in the rounds. **31**: 120(A)—1959

Quint, Robert H. Acoustic field of a circular piston in the near zone. **31**: 190—1959

Raelson, V. J., M. D. Burkhard, and R. W. Benson. Attenuation of spherical helmets. **31**: 129(A)—1959
Rao, B. Ramachandra (see Rao, K. Subba). **31**: 439—1959
Rao, K. Subba and B. Ramachandra Rao. Study of temperature variation of ultrasonic velocities in some organic liquids by modified fixed-path interferometer method. **31**: 439—1959
Rasmussen, Gunnar (see Bruel, Per V.). **31**: 1570(A)—1959
Rawlings, Irving L. (see Thurlow, Willard R.). **31**: 1332—1959
Rebbin, W. R. (see Mundie, J. R.). **31**: 841(A)—1959
Redwood, M. Velocity and attenuation of a narrow-band, high-frequency compressional pulse in a solid wave guide. **31**: 442—1959
Reed, S. G., Jr. Note on finite amplitude propagation effects on shock wave travel times from explosions at high altitude. **31**: 1265(L)—1959
Reilly, Norman B. (see Brandauer, Carl M.). **31**: 1569(A)—1959
Remillard, Wilfred J. Method of obtaining amplitude and phase spectra of a transient function using graphical input data. **31**: 531—1959
Ribner, H. S. New theory of jet-noise generation, directionality, and spectra. **31**: 245(L)—1959
Ricard, J. (see Brown, M. V.). **31**: 1572(A)—1959
Richards, Roy L. (see Sabine, Hale J.). **31**: 1577(A)—1959
Richardson, E. G. Velocity of ultrasonics in halogen vapors. **31**: 152—1959
Riopelle, Arthur J. (see Fletcher, John L.). **31**: 831(A)—1959
—— (see Loeb, Michel). **31**: 831(A)—1959
Robson, Ernest M. *The Orchestra of the Language* reviewed by Kenneth N. Stevens. **31**: 1042—1959
Rosen, George. Fricative production by a dynamic analog synthesizer. **31**: 1564(A)—1959
—— **and Kenneth N. Stevens.** Apparatus for the generation of psycho-acoustic stimuli varying in complexity from noise bursts to syllables. **31**: 114(A)—1959
—— (see Stevens, K. N.). **31**: 844(A)—1959
Rosenzweig, Mark R. Review of *Listening in the Dark* by Donald R. Griffin. **31**: 375—1959
Ross, Donald. Shear damping treatment involving spacer-foil configuration. **31**: 1578(A)—1959
—— (see Kerwin, Edward M., Jr.). **31**: 1578(A)—1959
Rowlands, Richard O. (see Brown, John L., Jr.). **31**: 1638—1959
Rubega, R. A. (see Ankerman, P. W.). **31**: 841(A)—1959
Rubenstein, Herbert (see Pollack, Irwin). **31**: 273—1959
Rubin, H. (see Zwislocki, J.). **31**: 9—1959
Ruff, George A. Sound propagation in shallow water. **31**: 838(A)—1959
Rule, Eric, Fred J. Suellentrop, and Thomas A. Perls. Second-order instrumentation systems with frequency-dependent stiffness and damping. **31**: 1457—1959
Rupert, Allen (see Galambos, Robert). **31**: 349—1959

Sabine, Hale J. and M. D. Burkhard. Atmospheric attenuation of sound fron an elevated source. **31**: 845(A)—1959
——, **Ralph Huntley, and Roy L. Richards.** Effect of painting on transmission loss of lightweight concrete partitions. **31**: 1577(A)—1959

Sabine, Paul Earls. Necrology. **31**: 372,536—1959
Sacerdote, C. Bordone. Detecting sound fields. **31**: 133—1959
Saenger, R. Alfred (see Lomask, Morton R.). **31**: 837(A)—1959
Saltus, D. W. Underwater noise in a semireverberant environment. **31**: 837(A)—1959
Samuels, J. Clifton. On propagation of waves in slightly rough ducts. **31**: 319—1959
—— Reflection and refraction of elastic waves at the interface of two moving semi-infinite plane media. **31**: 1076—1959
Sandel, T. T. Averages of responses evoked by tonal stimuli in the auditory cortex of the cat. **31**: 842(A)—1959
—— (see Geisler, C. D.). **31**: 128(A)—1959
Sapega, A. E. Characteristics of typewriter noise. **31**: 849(A)—1959
Sato, Kozi and Masaru Koyasu. Dependence of sound absorption coefficient upon area of acoustic materials. **31**: 628(L)—1959
Saunders, Herbert and Paul R. Paslay. Inextensional vibrations of a sphere-cone shell combination. **31**: 579—1959
——, **E. J. Wisniewski, and P. R. Paslay.** Vibrations of conical shells. **31**: 1577(A)—1959
Sayers, B. McA. (see Cherry, Colin). **31**: 535(L)—1959
Scharf, Bertram. Critical bands and the loudness of complex sounds near threshold. **31**: 365—1959
—— Loudness of complex sounds as a function of the number of components. **31**: 783—1959
Schjelderup, H. C. Structural acoustic proof testing. **31**: 125(A)—1959
Schodder, G. R. (see David, E. E., Jr.). **31**: 1565(A)—1959
Schroeder, Manfred R. Improvement of acoustic feedback stability in public address systems. **31**: 851(A)—1959
—— Measurement of sound diffusion in reverberation chambers. **31**: 1407—1959
—— New approach to time domain analysis and synthesis of speech. **31**: 852(A)—1959
—— New results concerning monaural phase sensitivity. **31**: 1579(A)—1959
—— **and E. E. David, Jr.** Vocoder and its application to the transmission of high-quality speech over narrow-band channels. **31**: 113(A)—1959
Schubert, Earl D. Importance of frequency range in dichotic speech. **31**: 854(A)—1959
—— **and Barry S. Elpern.** Psychophysical estimate of the velocity of the traveling wave. **31**: 990—1959
—— (see Elpern, Barry S.). **31**: 124(A)—1959
—— (see Koidan, Walter). **31**: 87, 377, 641, 1043, 1275, 1542—1959
—— (see Tobias, Jerry V.). **31**: 830(A), 1595—1959
Schubert, Kurt. *Sprachhörprüfmethoden* reviewed by J. Donald Harris. **31**: 256—1959
Schulman, Arthur I. (see Egan, James P.). **31**: 768, 835(A), 1579(A)—1959
Schultz, T. J. Electrostatic transducers. **31**: 842(A)—1959
Schure, Alexander, editor. *A-C Circuit Analysis.* **31**: 541(T)—1959
——, editor. *Impedance Matching* reviewed by Edward T. Kornhauser. **31**: 86—1959
——, editor. *Vacuum Tube Characteristics* reviewed by F. V. Hunt. **31**: 541—1959
Schwan, Herman P. (see Carstensen, Edwin L.). **31**: 185, 305—1959
Schwartz, Arnold (see Carlisle, Richard W.). **31**: 830(A), 1348—1959
Scrimger, J. A. Shallow water sound propagation studies in an intermediate scale model. **31**: 837(A)—1959
Seckler, Bernard D. and Joseph B. Keller. Asymptotic theory of diffraction in inhomogeneous media. **31**: 206—1959
—— **and Joseph B. Keller.** Geometrical theory of diffraction in inhomogeneous media. **31**: 192—1959
Serotta, N. (see Ehrlich, S. L.). **31**: 854(A)—1959
Setterlund, G. G. (see Skoog, J. A.). **31**: 227—1959
Sewall, Susan A. (see Swets, John A.). **31**: 835(A)—1959
Shaffer, J. (see Guthrie, A. N.). **31**: 1572(A)—1959
Shankland, Robert S. Acoustics of Severance Hall. **31**: 121(A)—1959
—— **and Edward A. Flynn.** Acoustics of Severance Hall. **31**: 866—1959
—— (see Ormestad, Helmut J.). **31**: 1588(A)—1959
Sharf, Donald J. Intelligibility of reiterated speech. **31**: 423—1959
Sharp, J. R. (see Kamperman, G. W.). **31**: 1570(A)—1959
Shattuck, Russell D. Capacitance-type displacement probe. **31**: 1297—1959
Shaw, E. A. G. (see Olson, N.). **31**: 852(A)—1959
Sherman, Charles H. Mutual radiation impedance of sources on a sphere. **31**: 947—1959
Sherrick, Carl E., Jr. Effect of background noise on the auditory intensive difference limen. **31**: 239—1959
Sherry, H. B. (see Berman, A.). **31**: 838(A)—1959
—— (see Clay, C. S.). **31**: 1572(A)—1959
Shields, F. Douglas. Measurements of thermal relaxation in CO_2 extended to 300°C. **31**: 248(L)—1959
Shimizu, Hiroshi (see Kikuchi, Yoshimitsu). **31**: 1385(L)—1959
Shipley, Elizabeth F. Cueing as a determiner of apparent variability in sensitivity. **31**: 834(A)—1959
—— (see Swets, John A.). **31**: 514—1959
Sholes, George N. Synthesis of final /z/ without voicing. **31**: 1568(A)—1959
Shore, I. (see Hirsh, I. J.). **31**: 1585(A)—1959
Shultz, G. L. Use of digital computers in speech analysis and synthesis. **31**: 1563(T)—1959
Sims, Claude C. Standard calibration hydrophone. **31**: 1676—1959
—— **and Robert J. Bobber.** Pressure phone for hydrophone calibrations. **31**: 131(A), 1315—1959
Sioles, George W. and Richard W. Carlisle. Listener reaction to stereophonic reproduction by reflected sound. **31**: 129(A)—1959
—— (see Bauer, Benjamin B.). **31**: 830(A)—1959
—— (see Levy, Sidney E.). **31**: 1256—1959
Sklar, Diane L. (see Ward, W. Dixon). **31**: 522, 600, 791, 831(A), 1138(L)—1959
Skoog, J. A. and G. G. Setterlund. Space requirements for equipment items subjected to random excitation. **31**: 227—1959
Skudrzyk, Eugen J. Electronic equipment and transducers for pulse measurements in the frequency range 500 cps to 10 Mc. **31**: 120(A)—1959
—— Sound scattering in an inhomogeneous medium in the case of a Kolmogorov distribution of patch sizes. **31**: 845(A)—1959
—— Theory of noise and vibration insulation of a system with many resonances. **31**: 68—1959
—— **and G. P. Haddle.** Sound radiation by a turbulent boundary layer. **31**: 1567(A)—1959
—— (see Haddle, G. P.). **31**: 1567(A)—1959
—— (see Krautkopf, D. W.). **31**: 111(A)—1959
Small, Arnold M., Jr. Pitch shifts with pure tone masking. **31**: 1566(A)—1959
—— Pure-tone masking. **31**: 836(A), 1619—1959
——, **W. Edward Bacon, and James L. Fozard.** Intensive differential thresholds for octave-band noise. **31**: 128(A), 508—1959
—— (see Fozard, James L.). **31**: 1681(L)—1959
Small, LaVerne D. (see Wray, Paul E.). **31**: 1583(A)—1959

Smith, Caldwell P. Studies of a method for digital voice communication. **31**: 1563(A)—1959
—— Use of digital computers in speech analysis and synthesis. **31**: 1563(T)—1959
Smith, P. W., Jr. Response of structures to sound. **31**: 1581(A)—1959
Snowdon, J. C. Steady-state behavior of the dynamic absorber. **31**: 1096—1959
—— Transient behavior of the dynamic absorber. **31**: 1668—1959
—— Utilization of the dynamic mechanical properties of rubber-like materials in vibration control. **31**: 847(A)—1959
—— **and G. G. Parfitt.** Isolation from mechanical shock with one- and two-stage mounting systems. **31**: 967—1959
Sobel, J. A. Diffusion principles for suppressing turbojet exhaust noise. **31**: 1580(A)—1959
Solomon, Lawrence N. Search for physical correlates to psychological dimensions of sounds. **31**: 492—1959
—— Semantic reactions to systematically varied sounds. **31**: 986—1959
——, **J. C. Webster, and J. F. Curtis.** Factorial study of speech perception. **31**: 853(A)—1959
Spieth, Walter. Effects of noise plus an O_2-CO_2 gas on the human auditory threshold. **31**: 124(A)—1959
Spradley, J. F. (see Misrahy, G. A.). **31**: 1575 (2 abstracts)—1959
Sreekantath, Gopala Menon and C. A. Verghese. On the intensity of ultrasonic beams diffracted by a wire grating. **31**: 633(L)—1959
Stedman, C. K. Acoustical damping for linear accelerometers. **31**: 333—1959
Steinberger, R. L. Acoustic Lloyd mirror effect in deep ocean water. **31**: 838(A)—1959
Stephens, R. W. B. (see Jarman, P.). **31**: 1582(T)—1959
Stevens, Kenneth N. Effect of duration upon vowel identification. **31**: 109(A)—1959
—— Review of *Proceedings of the Eighth International Congress of Linguists* published by the Olso University Press. **31**: 1274—1959
—— Review of *The Orchestra of the Language* by Ernest M. Robson. **31**: 1042—1959
——, **C. G. Bell, P. T. Brady, J. M. Heinz, and G. Rosen.** Automatic resolution of speech spectra into elemental spectra. **31**: 844(A)—1959
—— (see Bell, C. G.). **31**: 1563(A)—1959
—— (see Malme, Charles I.). **31**: 129(A)—1959
—— (see Rosen, George). **31**: 114(A)—1959
Stevens, S. S. On the validity of the loudness scale. **31**: 995—1959
Stewart, David A. Experimental use of electrical network theory in complex linear mechanical structures. **31**: 125(A)—1959
Stewart, James L. Analysis for a 3 kMc ultrasonic liquid interferometer. **31**: 836(A)—1959
Stocklin, Philip L. Spatial sampling and processing. **31**: 116(A)—1959
Stram, Oscar B. (see Epstein, Herman). **31**: 266(P), 658(P)—1959
Strasberg, M. Onset of ultrasonic cavitation in tap water. **31**: 163—1959
Stroh, W. Richard. Direct measurement of the acoustic ratio. **31**: 234—1959
Stuehr, John, G. S. Verma, Ernest Yeager, and Frank Hovorka. Ultrasonic absorption in electrolytic solutions. **31**: 1586(A)—1959
Subrahmanyam, D. L. (see Peterson, Gordon E.). **31**: 113(A)—1959
Suckling, E. E. Observations on resolution and on field variations in near field sonic optical systems. **31**: 678—1959
Suellentrop, Fred J. (see Rule, Eric). **31**: 1457—1959
Sukys, R., R. E. Bach, Jr., and S. H. Chang. Supplementing the Formoder with fixed vocoder-like bands. **31**: 113(A)—1959
Summerfield, Anne, James Nixon, and Aram Glorig. Comparisons of hearing loss in general population groups. **31**: 124(A)—1959
—— (see Glorig, Aram). **31**: 124(A)—1959
Summerfield, M. B. (see Ingard, K. U.). **31**: 76—1959
Summers, A. C. (see Barraclough, T. W.). **31**: 1104—1959
Sutton, Paul M. Propagation of sound in plate-shaped solid delay lines. **31**: 34—1959
Swets, John A. Indices of signal detectability obtained with various psychophysical procedures. **31**: 511—1959
—— **and Susan A. Sewall.** Stimulus and response theories of signal uncertainty. **31**: 835(A)—1959
——, **Elizabeth F. Shipley, Molly J. McKey, and David M. Green.** Multiple observations of signals in noise. **31**: 514—1959
—— (see Green, David M.). **31**: 834(A)—1959

Talham, Robert J. (see Jacobson, Melvin J.). **31**: 1352—1959
Tall, Joel. *Techniques of Magnetic Recording* reviewed by Harry F. Olson. **31**: 87—1959
Taniguchi, Harry H. Instrumentation for measurement of sonic boom. **31**: 1571(A)—1959
Tanner, R. H. Acoustical performance of the Stratford (Ontario) Festival Theatre. **31**: 839(A)—1959
Tanner, Wilson P., Jr. Effect of memory for amplitude on amplitude discrimination. **31**: 1575(A)—1959
—— Graphical presentation of data in the framework of the theory of signal detectability. **31**: 243(L)—1959
—— Individual differences and inconclusive experiments in psychophysics. **31**: 835(A)—1959
—— Some experiments on frequency recognition. **31**: 127(A)—1959
—— (see Clarke, F. R.). **31**: 629(L)—1959
Tarab, S. (see Legouix, J. P.). **31**: 1453—1959
Tatge, R. B., R. J. Wells, and R. P. Evans. A high intensity noise facility. **31**: 117(A)—1959
Teas, Don C., Sidney P. Diamond, and Hallowell Davis. Electrophysiologic responses to acoustic transients. I. Cochlear microphonics. **31**: 1574(A)—1959
—— (see Diamond, Sidney P.). **31**: 1574(A)—1959
Thiessen, G. J. and I. R. Dagg. Vibration as a quantitative measuring tool of liquid density. **31**: 843(A)—1959
—— (see Embleton, T. F. W.). **31**: 849(A)—1959
—— (see Olson, N.). **31**: 852(A)—1959
Thomas, Charles Kenneth. *An Introduction to the Phonetics of American English* reviewed by Morris Halle. **31**: 86—1959
Thomas, John B. and Thomas R. Williams. On the detection of signals in nonstationary noise by product arrays. **31**: 453—1959
Thompson, Paul O. and Robert S. Gales. Temporary threshold shifts from tones and noise bands of equivalent rms sound pressure level. **31**: 1579(A)—1959
Thrasher, D. B. (see Macpherson, P. A.). **31**: 1580(A)—1959
Thurlow, Willard R. and Lloyd F. Elfner. Continuity effects with alternately sounding tones. **31**: 1337—1959
—— **and Lloyd F. Elfner.** Pure-tone cross-ear localization effects. **31**: 1606—1959
—— **and Irving L. Rawlings.** Discrimination of number of simultaneously sounding tones. **31**: 1332—1959
Thurston, George B. Acoustic impedance of a viscoelastic fluid confined between parallel planes. **31**: 846(A)—1959
Tillman, Tom W. (see Jerger, James F.). **31**: 1264(L)—1959
Tillou, F. M. and K. J. Metzgar. Graphical method of determining the ratings of shaker-amplifier systems for sine wave and random noise vibration testing. **31**: 126(A)—1959
Timmens, J. (see Olson, H. F.). **31**: 1565(A)—1959
Tirey, George B. (see Nafe, John E.). **31**: 131(A)—1959

Tobias, Jerry V. Relative occurrence of phonemes in American English. **31**: 631(L)—1959
—— **and Jack F. Curtis.** Binaural masking of noise by noise. **31**: 127(A)—1959
—— **and Earl D. Schubert.** Effective duration of the onset-transient cue to auditory localization. **31**: 830(A)—1959
—— **and Earl D. Schubert.** Effective onset duration of auditory stimuli. **31**: 1595—1959
—— **and Stanley Zerlin.** Lateralization threshold as a function of stimulus duration. **31**: 1591—1959
Toht, Arthur E. (see Waldrop, William F.). **31**: 110(A)—1959
Tolhurst, G. C. and S. N. Morrill. Method for the measurement and analysis of the near noise field of jet aircraft. **31**: 850(A)—1959
Tolstoy, I. and J. May. Numerical solution for the problem of long-range sound propagation in continuously stratified media, with applications to the deep ocean. **31**: 1572(A)—1959
—— (see Guthrie, A. N.). **31**: 1572(A)—1959
Tonndorf, Juergen. Beats in cochlear models. **31**: 124(A), 608—1959
—— Response of cochlear models to aperiodic signals. **31**: 841(A)—1959
—— Shearing motion within scala media of cochlear models. **31**: 1575(A)—1959
Touger, M. L. (see Ware, E. R.). **31**: 128(A)—1959
—— (see Weinreb, L.). **31**: 129(A)—1959
Toupin, R. A. Piezoelectric relations and the radial deformation of a polarized spherical shell. **31**: 315—1959
Trent, Horace M. On the conceptual necessity and use of perfect couplers in schematic diagrams. **31**: 125(A), 326—1959
—— Review of *Mechanical Vibration* by G. W. Van Santen. **31**: 85—1959
Trittipoe, William J. Residual effects at longer pre-exposure durations. **31**: 244(L)—1959
—— Residual effects of low noise levels on the temporary threshold shift. **31**: 832(A)—1959
—— **and Irwin Pollack.** Binaural listening and interaural noise correlation. **31**: 127(A)—1959
—— (see Pollack, Irwin). **31**: 1250, 1616—1959
Truell, Rohn. Comparison and discussion of some of the current ideas and methods for obtaining microwave ultrasonics. **31**: 836(A)—1959
—— (see Einspruch, Norman G.). **31**: 691—1959
Tschiegg, Carl E. and Earl E. Hays. Transistorized velocimeter for measuring the speed of sound in the sea. **31**: 1038(L)—1959
Tschiegg, Carroll E. (see Greenspan, Martin). **31**: 75—1959
Tyson, L. (see Clay, C. S.). **31**: 1572(A)—1959
Tyzzer, F. (see Ingard, K. U.). **31**: 76—1959

Ungar, Eric E. Response of plates to moving shocks. **31**: 1581(A)—1959
—— (see Franken, Peter A.). **31**: 1581(A)—1959
Urick, R. J. Calibration of two transducers assumed identical. **31**: 251(L)—1959
—— Image summation in shallow-water sound propagation. **31**: 832(A)—1959
—— Side-scattering of sound in shallow water. **31**: 1573(A)—1959
—— **and R. T. Moore.** Low-frequency sound transmission in very shallow water. **31**: 130(A)—1959

van Bergeijk, Willem A. External spiral innervation of the cochlea. **31**: 842(A)—1959
—— Hydrostatic balancing mechanism of *Xenopus* larvae. **31**: 1340—1959
—— (see David, E. E., Jr.). **31**: 774—1959
Van Dyke, Joseph D. (see Belcher, Peter M.). **31**: 125(A)—1959
Van Santen, G. W. *Mechanical Vibration* reviewed by Horace M. Trent. **31**: 85—1959
Veneklasen, Paul S. Designing auditory perspective into live musical presentation. **31**: 839(A)—1959
—— Improved directional distribution from horn arrays. **31**: 842(A)—1959
—— Limits of ear protection. **31**: 841(A)—1959
—— Sound attenuating gaps. **31**: 833(A)—1959
—— **and Jerry Christoff.** Basic speech factors. **31**: 853(A)—1959
—— **and Finn Jorgensen.** Fabric acoustimeter. **31**: 842(A)—1959
Verghese, C. A. (see Sreekantath, Gopala Menon). **31**: 633(L)—1959
Verma, G. S. (see Stuehr, John). **31**: 1586(A)—1959
Vogel, Reinhold and Robert I. Bernstein. Optimum fine resolution spectrum analyzer. **31**: 1571(A)—1959
von Békésy, Georg. Neural funneling along the skin and between the inner and outer hair cells of the cochlea. **31**: 1236—1959
—— Synchronism of neural discharges and their demultiplication in pitch perception on the skin and in hearing. **31**: 338—1959
von Gierke, H. E., John N. Cole, and Hans L. Oestreicher. Acoustic siren for generating wide-band noise. **31**: 116(A)—1959
—— **and Charles W. Nixon.** Experiments on the bone-conduction threshold in a free sound field. **31**: 127(A)—1959
—— (see Mundie, J. R.). **31**: 841(A)—1959
—— (see Nixon, C. W.). **31**: 1121—1959
Voots, R. J. and P. L. West. Report on an investigation of certain flute "blow-hole" parameters. **31**: 1565(A)—1959
Vrataric, F. (see McDade, J. C.). **31**: 1380—1959

Wachspress, Melvin H. Ultrasonic Doppler for distance measurement. **31**: 1571(A)—1959
Waldrop, William F. and Arthur E. Toht. Analysis of vowels of laryngectomized speakers. **31**: 110(A)—1959
Walker, C. T. and C. E. Adams. Thermal effects of acoustic streaming near a cylindrical obstacle. **31**: 813(L)—1959
Wallace, John D., James R. Brown, Jr., David H. Lewis, George W. Deitz, III, and Ali Ertugrul. Intracardiac acoustics. **31**: 712—1959
Walters, Karl. *Zur Wirkung von Ultraschall auf die Keimung und Entwicklung von Pflanzen und auf den Verlauf von Pflanzenkrankheiten* reviewed by W. L. Nyborg. **31**: 821—1959
Wandsdronk, C. On the influence of the diffraction of sound waves around the human head on the characteristics of hearing aids. **31**: 1609—1959
Ward, W. Dixon. On "latent" auditory fatigue. **31**: 831(A)—1959
——, **Aram Glorig, and Diane L. Sklar.** Relation between recovery from temporary threshold shift and duration of exposure. **31**: 600—1959
——, **Aram Glorig, and Diane L. Sklar.** Susceptibility and sex. **31**: 831(A), 1138(L)—1959
——, **Aram Glorig, and Diane L. Sklar.** Temporary threshold shift from octave-band noise: applications to damage-risk criteria. **31**: 522—1959
——, **Aram Glorig, and Diane L. Sklar.** Temporary threshold shift produced by intermittent exposure to noise. **31**: 791—1959
Ware, E. R., R. M. Carrell, and M. L. Touger. Headset microphone for communication in noise fields of 135 db and higher. **31**: 128(A)—1959
Waterhouse, R. V. (see Ingard, K. U.). **31**: 76—1959

Watson, Charles S. Masking of tones by noise for the cat. **31**: 1574(A)—1959
—— (see Miller, James D.). **31**: 1574 (3 abstracts)—1959
Watson, Robert B. (see Cho, Alfred C. F.). **31**: 118(A), 1322—1959
Watson, Warren. Subjective reaction to airplane noise. **31**: 112(A)—1959
Watters, Bill G. Transmission loss of single, solid walls. **31**: 118(A)—1959
—— Transmission loss of some masonry walls. **31**: 898—1959
——, **R. M. Hoover, and Peter A. Franken.** Exhaust muffler design for two-cycle engines. **31**: 117(A)—1959
—— (see Allen, Clayton H.). **31**: 119(A), 177, 463, 842(A)—1959
—— (see Dyer, Ira). **31**: 840(A)—1959
—— (see Farrell, W. R.). **31**: 1577(A), 1580(A)—1959
—— (see Kurtze, Gunther). **31**: 739, 833 (2A)—1959
Wayne, William C., Jr. Electronic production of choral tone. **31**: 839 (A)—1959
Weber, P. (see Clay, C. S.). **31**: 1572(A)—1959
Webster, John C., Roy G. Klumpp, and Albert L. Witchey. Evaluation of a modulated air-flow loudspeaker. **31**: 129(A), 795—1959
—— (see Solomon, L. N.). **31**: 853(A)—1959
—— (see Young, R. W.). **31**: 839(A)—1959
Weinreb, L. and M. L. Touger. How much ear protection? **31**: 129 (A)—1959
Weiss, E. Dynamics of bone receiver instruments. **31**: 841(A)—1959
Weiss, T. F. (see Geisler, C. D.). **31**: 128(A)—1959
Welkowitz, Walter. Ultrasonic welding. **31**: 120(A)—1959
Wells, R. J. (see Tatge, R. B.). **31**: 117(A)—1959
Wendahl, Ronald W. Fundamental frequency and absolute vowel identification. **31**: 109(A)—1959
West, P. L. (see Voots, R. J.). **31**: 1565(A)—1959
Westervelt, Peter J. Absorption of finite amplitude waves. **31**: 840(A)—1959
White, C. E. Instrumentation precision as affected by vibrational environment. **31**: 843(A)—1959
White, Donald L. β-quartz as high-temperature piezoelectric material. **31**: 311—1959
White, F. E. Review of *Concise Dictionary of Science* by Frank Gaynor. **31**: 1390—1959
Whymark, R. R. Intense sound output of a nickel magnetostrictive transducer. **31**: 1570(A)—1959
Wiener, Francis M. On the determination of sound power in semireverberant spaces. **31**: 851(A)—1959
—— **and David N. Keast.** Experimental study of the propagation of sound over ground. **31**: 724—1959
—— (see Kryter, Karl D.). **31**: 1564(A)—1959
Williams, A. O., Jr. Some effects of velocity structure on low-frequency propagation in shallow water. **31**: 1573(A)—1959
Williams, Carl (see Green, David M.). **31**: 1264(L)—1959
—— (see Kryter, Karl D.). **31**: 1585(A)—1959
Williams, L. (see Kamperman, G. W.). **31**: 1570(A)—1959
Williams, Thomas R. (see Thomas, John B.). **31**: 453—1959
Williams and Wilkins, publisher. *International Conference of Ultrasonics in Medicine* reviewed by W. L. Nyborg. **31**: 85—1959
Wilson, Wayne D. Speed of sound in distilled water as a function of temperature and pressure. **31**: 1067—1959
Wise, E. M. (see Harris, W. T.). **31**: 854(A)—1959
Wisniewski, E. J. (see Saunders, H.). **31**: 1577(A)—1959
Witchey, Albert L. (see Webster, John C.). **31**: 129(A), 795—1959
Wittenborn, A. F. Analysis of a logarithmic solion acoustic pressure detector. **31**: 475—1959
Wood, A. B. Model experiments on sound propagation in shallow seas. **31**: 130(A), 1213—1959
Woodhead, Muriel M. Effect of brief loud noise on decision making. **31**: 1329—1959
Wray, Paul E. and LaVerne D. Small. Study of the application of ultrasonic energy to the extraction of belladonna leaf U.S.P. **31**: 1583(A)—1959
Wright, H. N. Auditory adaptation in noise. **31**: 1004—1959

Yeager, Ernest, Jonathan Booker, and Frank Hovorka. Ultrasonic vibration potentials in non-ionic liquids. **31**: 848(A)—1959
—— (see Booker, Jonathan). **31**: 120(A)—1959
—— (see Penn, Robert). **31**: 1372—1959
—— (see Stuehr, John). **31**: 1586(A)—1959
Yingling, A. and H. Medwin. Lloyd's mirror test of a wedge-lined "anechoic" tank. **31**: 131(A)—1959
Young, Robert W. Intonation of an alto and a tenor saxophone. **31**: 1565(A)—1959
—— On naming reverberation equations. **31**: 1681(L)—1959
—— Review of acoustical patents. **31**: 99, 258, 389, 542, 655, 822, 1057, 1146, 1290, 1391, 1553, 1688—1959
—— Sabine reverberation equation and sound power calculations. **31**: 912—1959
—— **and J. C. Webster.** Some factors affecting the intonation of a clarinet. **31**: 839(A)—1959

Zankel, K. L. Effects of progressive ultrasonic waves on a narrow light beam. Theoretical. **31**: 849(A)—1959
—— Light diffracted by two parallel ultrasonic waves of the same frequency. **31**: 849(A)—1959
—— **and E. A. Hiedemann.** Diffraction of light by ultrasonic waves progressing with finite but moderate amplitudes in liquids. **31**: 44—1959
—— (see Hargrove, L. E.). **31**: 1366—1959
Zarwyn, Berthold. Acoustic spectrum of transient cavitation processes. **31**: 1582(A)—1959
Zerlin, Stanley. Interaural time disparity threshold as a function of interaural correlation. **31**: 127(A)—1959
—— (see Tobias, Jerry V.). **31**: 1591—1959
Zinsser, Hans H. (see Lamport, Harold). **31**: 435—1959
Zwislocki, J. Analysis of the frequency characteristic of the ear below 1000 cps. **31**: 123(A)—1959
—— Electrical model of the middle ear. **31**: 841(A)—1959
——, **E. Pirodda, and H. Rubin.** On some poststimulatory effects at the threshold of audibility. **31**: 9—1959

Author Index to Patent Inventors, Volume 31

Acker, Norbert Karl. Patent 2,865,638. Phonograph record player. **31**: 1695—1959
Adams, Crawford M. Patent 2,870,858. Noise reduction in transformers. **31**: 1402—1959
Adel, Alf F. (see DeCola, Rinaldo E.). **31**: 1689—1959
Aebersold, Frederick C. Patent 2,878,689. Tuned vibration damping system for drive trains. **31**: 1404—1959
Ahola, Taito. Patent 2,821,880. Piano playing device. **31**: 1698—1959
Aileo, Jackson A. (see Finken, Walter S.). **31**: 1689—1959
Albee, Arthur C. and James L. Pettus. Patent 2,870,975. Sound film reproducer driving system. **31**: 824—1959
Allison, Ralph E. Patent 2,848,539. Audiometer. **31**: 99—1959
—— Patent 2,848,612. Complex noise generator. **31**: 390—1959

—— Patent 2,856,583. Sound-level meter attenuator system. **31**: 823—1959

Allison, Roy F., Alan C. Macy, and Marsh B. Giddings, Jr. Patent 2,822,883. Device for use in reproducing sounds. **31**: 1147—1959

Alvey, Graham C. (see Doe, Robert E.). **31**: 1393—1959

Amlott, Norman J. Patent 2,862,572. Cleaner-silencer **31**: 1559—1959

Ancell, James E. (see Wiegand, David E.). **31**: 390—1959

Andersen, Clifford W. (see Tucker, Clarence W.). **31**: 264—1959

Anderson, Eric E. Patent 2,828,359. Signaling devices. **31**: 263—1959

Anderson, Walter J. Patent 2,814,726. Electrical musical instruments. **31**: 1154—1959

—— Patent 2,819,640. Electrical musical instrument. **31**: 1700—1959

—— Patent 2,823,310. Electrical musical instrument. **31**: 1700—1959

—— **and Howard E. Holman.** Patent 2,811,887. Electrical musical instrument. **31**: 1153—1959

Andorfer, Hans. Patent 2,805,842. Sound-damping climatizing systems. **31**: 542—1959

Andres, Lloyd J. Patent 2,837,338. Continuous multiple record player. **31**: 656—1959

Andrews, Dallas R. Patent 2,866,857. Phonograph pickup. **31**: 1060—1959

—— (see Roys, Henry E.). **31**: 396—1959

Angle, Belford C. (see Morrell, George Arthur, Jr.). **31**: 1694—1959

Anxionnaz, René. Patent 2,772,854. Vibration damping means for bladings of turbomachines. **31**: 1295—1959

Applegate, Raymond P. Patent 2,765,141. Shock and vibration base mount. **31**: 1065—1959

Argentieri, Peter A. Patent 2,820,406. Noise reduction means for air outlet devices. **31**: 1398—1959

Arnold, James S. Patent 2,851,876. Ultrasonic apparatus for the nondestructive evaluation of structural bonds. **31**: 829—1959

Athey, Skipworth W., Louis L. Pourciau, and David B. Shaw. Patent 2,841,654. Record actuated sound system. **31**: 543—1959

Atkinson, Ralph B. and Steven G. Ellis. Patent 2,853,560. Variable area magnetic recording apparatus. **31**: 397—1959

Austin, Harry W., Robert R. Hornickel, and Don E. Sietam. Patent 2,844,820. Noise protective device. **31**: 390—1959

Avseev, Ralph J. (now Ralph J. Ives). Patent 2,886,648. Film editing machine. **31**: 1397—1959

Awedissjan, Michran K. Patent 2,861,458. Vibration generator. **31**: 1405—1959

Babler, Otto. Patent 2,875,623. Multispeed phonograph drive. **31**: 1695—1959

Bachman, William S. Patent 2,858,370. Sound reproducer. **31**: 1694—1959

Backe, John C. Patent 2,881,548. Sonic action fish lure. **31**: 1406—1959

Bagno, Samuel M. Patent 2,832,952. Electroacoustic transducer. **31**: 399—1959

Bailey, William Rugh (see Jones, James Byron). **31**: 400—1959

Ball, John H. Patent 2,851,270. Toy whistle attachment. **31**: 542—1959

Balmer, Donald F. (see Runge, Frank E.). **31**: 1061—1959

Banker, Oscar H. Patent 2,775,105. Torsional vibration absorber. **31**: 1401—1959

Barbera, Robert A. Patent 2,876,979. Shock absorption and vibration isolator. **31**: 1404—1959

Bard, George L. Patent 2,869,877. Playback sound reproducer. **31**: 1695—1959

Barkelew, Harry D. Patent 2,829,730. Exhaust gas muffler and oxidizer. **31**: 1398—1959

Barkelew, James T. Patent 2,831,548. Exhaust gas muffler and oxidizer. **31**: 1399—1959

Barnett, Herbert R. (see Hornickel, Robert R.). **31**: 1290—1959

Barney, Harold L. Patent 2,819,341. Transmission and reconstruction of artificial speech. **31**: 1156—1959

Barthe, Paulette. Patent 2,837,606. Announcing method and and apparatus. **31**: 392—1959

Batchelder, Laurence. Patent 2,844,809. Compressional wave transducers. **31**: 268—1959

Baudet, Raimond Edouard Marie (see Bevoort, Cornelis). **31**: 1058—1959

Bauer, Benjamin B., Lee Gunter, Jr., and Charles E. Seeler. Patent 2,900,452. Phonograph pickup. **31**: 1696—1959

Bauer, Howard G. (see Osborne, Fred H.). **31**: 1700—1959

Bayless, James W. Patent 2,839,306. Record and method of making same. **31**: 656—1959

Bean, Roscoe D. Patent 2,875,433. Adjustable sound level control for audible signals of the vibratory type. **31**: 1689—1959

Beaujard, Louis, Vladimir Husarek, and Andre Vasset. Patent 2,836,059. Arrangement for recording the results of the supersonic examination of metal parts. **31**: 400—1959

Beecroft, Robert J. and Edward N. Fenton. Patent 2,871,971. Sound-propagating device. **31**: 1391—1959

Bell, Norton W. Patent 2,799,015. Vibration indicator. **31**: 1561—1959

Benecke, Heinrich O. Patent 2,891,232. Hydrophone for directional listening buoy. **31**: 1704—1959

Benjamin, Reuben Allen. Patent 2,850,109. Light-permeable sound-absorbing panel. **31**: 822—1959

Benson, James E. (see Rudd, Walter W.). **31**: 101—1959

Bergmann, Friedrich. Patent 2,809,237. Magnetic sound recording head. **31**: 103—1959

Bernstein, Allan C. Patent 2,855,461. School to home communication system. **31**: 825—1959

Bertram, Klaus. Patent 2,845,491. Stereophonic apparatus. **31**: 543—1959

Best, Cleafe A., J., Jr., and Weichien Chow. Patent 2,854,660. Horn circuit. **31**: 823—1959

Bevoort, Cornelis and Raimond Edouard Marie Baudet. Patent 2,867,688. Automatic volume regulator. **31**: 1058—1959

Bierlein, Carl A. (see Bixler, George W.). **31**: 1401—1959

Bierman, Raymond C. (see Dale, Colin B.). **31**: 1292—1959

Billey, Leino H. Patent 2,809,709. Silencer. **31**: 1155—1959

—— Patent 2,853,148. Exhaust silencer and rain trap. **31**: 1064—1959

Bincer, Hans (see Boxcer, John R.). **31**: 1702—1959

Bird, Martin J. Patent 2,824,540. Siren construction. **31**: 1689—1959

Bixler, George W. and Carl A. Bierlein. Patent 2,775,470. Exhaust stack vibration isolator. **31**: 1401—1959

Blackman, Arthur W., Jr., and George D. Lewis. Patent 2,865,174. Screech reduction in combustion chambers. **31**: 1560—1959

Blake, Francis G. and Aubra E. Tilley. Patent 2,841,777. Method for compensating seismic detector signals for intersignal time variations. **31**: 260—1959

Blaney, Arthur. Patent 2,885,491. Constant wavelength control tone system. **31**: 1292—1959

Blaney, Dorothy L. Patent 2,797,264. Magnetic volume control system. **31**: 103—1959

Bleazey, John C. Patent 2,814,677. Directional microphone. **31**: 391—1959

Blow, Angus W. Patent 2,830,117. Public address system. **31**: 261—1959

—— **and George H. Clark.** Patent 2,881,250. Monitoring indication for communication system. **31**: 1696—1959
Bobb, Lloyd J. Patent 2,890,760. Transducers. **31**: 1555—1959
—— **and Charles A. Perry.** Patent 2,820,527. Transducers. **31**: 1147—1959
Bodine, Albert G., Jr. Patent 2,854,816. Sonic engine exhaust combustor. **31**: 1064—1959
—— Patent 2,871,943. Petroleum well treatment by high power acoustic waves to fracture the producing formation. **31**: 1393—1959
——, **and James D. Stoakes.** Patent 2,887,604. Spark discharge sound generator. **31**: 1703—1959
Boggs, Chester A. Patent 2,831,068. Miniature tape recording mechanism. **31**: 394—1959
Bokorney, Fred R. Patent 2,767,337. Balancing machine pickup. **31**: 660—1959
Bonn, Leonard. Patent 2,881,850. Infinite baffle comprising a spherical shell of foamed plastic. **31**: 1554—1959
Boontje, Jan and Henk Lautersiager. Patent 2,864,896. Device for recording sound oscillations in spiral grooves on a plate-shaped carrier. **31**: 543—1959
Booth, Galt B., William G. Brown, and Karl Unholtz. Patent 2,781,461. Electromagnetic vibration exciter. **31**: 660—1959
Borsh, Joseph (see Michael, Paul L.). **31**: 1058—1959
Boschi, Antonio and Vittorino Mastropietro. Patent 2,783,959. Rubber spring for elastic mountings. **31**: 659—1959
Boubet, Charles and André L. M. Dupuis. Patent 2,887,660. Transducer of mechanical vibrations into electrical oscillations. **31**: 1397—1959
Bourne, Roland B. and John P. Tyskewicz. Patent 2,829,729. Silencer for the exhaust gases of an internal combustion engine. **31**: 1295—1959
Bowser, Phillip C. and Maurice Olley. Patent 2,854,100. Vibration damper. **31**: 401—1959
Boxcer, John R. and Hans Bincer. Patent 2,875,607. Ultrasonic testing apparatus. **31**: 1702—1959
Boyer, Jesse Eugene (see Johnson, Howard R.). **31**: 1156—1959
Boyers, John S. Patent 2,848,660. Mass demagnetizing device for magnetic recording media. **31**: 657—1959
Bradley, Clark F. (see Pierce, Firth). **31**: 829—1959
Branson, Norman G. Patent 2,845,077. Ultrasonic cleaning apparatus. **31**: 546—1959
Brasseur, Eudore Desire. Patent 2,847,587. Driving mechanism for head of sound recording and reproducing apparatus. **31**: 656—1959
—— Patent 2,869,876. Sound recording and reproducing apparatus. **31**: 1062—1959
Bremer, De La Wilmore and John F. Lovejoy. Patent 2,824,619. Muffler. **31**: 1294—1959
Brettell, George A., Jr. (see Pierce, Firth). **31**: 829—1959
Brewster, Arthur Edward. Patent 2,868,891. Magnetic recording device. **31**: 1556—1959
Bridenbaugh, Paul K. (see Dale, Colin B.). **31**: 1292—1959
Briggs, John G. Patent 2,807,182. Mute for brass wind instruments. **31**: 264—1959
Brooke, Thomas A. and Eric J. Smith. Patent 2,873,940. Antivibration mounting. **31**: 1403—1959
Brower, David F. Patent 2,863,002. Magnetic transducer. **31**: 1150—1959
—— **and Raymond Howard Griest.** Patent 2,840,643. Integral transformer electromagnetic transducer. **31**: 106—1959
Brown, Delmar H. Patent 2,851,539. Apparatus for reproducing sound. **31**: 263—1959
Brown, Gilbert G. Patent 2,824,543. Ultrasonic tinning apparatus. **31**: 1701—1959
Brown, Ilo M. Patent 2,829,728. Protective cone assembly for loudspeakers. **31**: 1148—1959
Brown, William G. (see Booth, Galt B.). **31**: 660—1959
Brownscombe, Philip J. Patent 2,810,021. Low-frequency loudspeaker. **31**: 101—1959
Bryant, Edwin E. Patent 2,825,421. Muffler. **31**: 1294—1959
Bryant, Ellis H., Jr. Patent 2,864,895. Recording apparatus. **31**: 1151—1959
Buchmann, Gerhard and Roland Karolus. Patent 2,872,532. Condenser loudspeaker. **31**: 1392—1959
Buhrendorf, Frederick G. Patent 2,790,645. Magnetic recording system. **31**: 102—1959
Burke, Ambrose. Patent 2,897,291. Sound reproducer. **31**: 1555—1959
Burns, Fred P. Patent 2,866,014. Piezoresistive acoustic transducer. **31**: 1059—1959
Burns, Harold S. and Paul A. de Mars. Patent 2,880,817. Loudspeaker system. **31**: 1691—1959
Burrise, Andrew H. Patent 2,868,484. Motor mounts and clips. **31**: 1402—1959
Bushey, Theodore J. (see Nielson, Carl A.). **31**: 1554—1959
Butterworth, John William. Patent 2,878,451. Piezoelectric resonator. **31**: 1293—1959
Butz, Arthur Nelson, Jr. Patent 2,865,015. Apparatus and method for echo ranging. **31**: 829—1959
Byrd, John F. Patent 2,846,514. Multiple sound source switching system. **31**: 656—1959

Camp, Leon W. Patent 2,855,244. Sonic liquid-spraying and atomizing apparatus. **31**: 827—1959
—— Patent 2,864,592. Liquid-vibrating apparatus. **31**: 827—1959
Camras, Marvin. Patent 2,795,651. Apparatus for making duplicate magnetic records. **31**: 103—1959
—— Patent 2,840,380. Magnetic recorder sound unit. **31**: 394—1959
—— Patent 2,840,642. Magnetic transducing assembly. **31**: 106—1959
—— Patent 2,848,221. Magnetic recorder drive mechanism. **31**: 395—1959
—— Patent 2,848,555. Means for recording. **31**: 657—1959
—— Patent 2,857,164. Magnetic recorder. **31**: 824—1959
—— Patent 2,867,692. Magnetic record duplicating device for producing magnetic records. **31**: 1062—1959
—— Patent 2,868,890. Nonlinear magnetic recording compensation. **31**: 1152—1959
—— Patent 2,869,878. Sound motion picture film. **31**: 1556—1959
Carlin, Benson. Patent 2,830,165. Ultrasonic magnetostriction transducer devices. **31**: 266—1959
Carlson, Arthur Godfrey. Patent 2,874,230. Combined spectacles and hearing aid with automatic self-seating earphone. **31**: 1058—1959
Carlson, Reuben C. (see DeCola, Rinaldo E.). **31**: 1689—1959
Carrell, Ross M. Patent 2,816,165. Sound translating system. **31**: 1156—1959
—— Patent 2,890,289. Ribbon-type magnetic armature transducer. **31**: 1554—1959
Carter, John George. Patent 2,818,471. Moving coil type loudspeakers. **31**: 1146—1959
Carter, Parke W. Patent 2,812,989. Vibration-resistant support for laboratory balances or the like. **31**: 1561—1959
Cavalieri, Albert L., Jr., and Robert W. Roop. Patent 2,875,353. Electromechanical reed system. **31**: 1690—1959
Cavanagh, Patrick E. Patent 2,867,118. Transducer and stress measuring means. **31**: 1405—1959
Cerofolini, Gabriele F. Patent 2,885,478. Loudspeaking telephone employing transistors. **31**: 1293—1959
Chapel, Glen R. Patent 2,855,068. Muffler. **31**: 1064—1959
Chaplar, Rudolph W. Patent 2,880,640. Music box construction. **31**: 1293—1959
Chave, Donald Maynard. Patent 2,808,895. Loudspeakers. **31**: 101—1959

Chow, Weichien (see Best, Cleafe A., Jr.). **31**: 823—1959
Christoff, Chris A. Patent 2,862,067. Adjustable magnetic transducer mount. **31**: 1150—1959
Cimiotti, Joseph (see Scheller, Paul). **31**: 1692—1959
Cinquini, Carlo. Patent 2,858,898. Auscultation and percussion sounding instrument. **31**: 823—1959
Clark, Donald L. Patent Re. 24,512. Erasing head for magnetic recording. **31**: 392—1959
Clark, George H. (see Blow, Angus W.). **31**: 1696—1959
Clark, John C. Patent 2,828,830. Nondirectional muffler. **31**: 1294—1959
Clayton, William. Patent 2,829,731. Combination muffler and exhaust gas after-burner and method of burning exhaust gases. **31**: 1398—1959
Clifford, Cecil Frank. Patent 2,852,725. Electrically maintained vibratory oscillator. **31**: 823—1959
Cook, Edward G. (see Van Valkenburg, Howard E.). **31**: 400—1959
Coombs, Robert S. Patent 2,832,430. Sound muffler device for exhausts of internal combustion engines. **31**: 1399—1959
Cooper, Benjamin and Arthur Stern. Patent 2,866,600. Sonic vehicle counter. **31**: 1689—1959
Cooper, Herbert K. Patent 2,862,209. Speech aid. **31**: 826—1959
Corney, John Victor. Patent 2,802,054. Sound reproducing apparatus. **31**: 100—1959
Coutant, André Clément and Jacques Mathot. Patent 2,829,207. Flywheel for recording and reproducing invisible images on a magnetic surface. **31**: 393—1959
Crain, Harry M. Patent 2,829,209. High-frequency bias supply for multichannel magnetic sound system. **31**: 394—1959
Crippen, Herbert O., Sr. Patent 2,836,093. Piano. **31**: 1699—1959
Cronin, Eugene J. Patent 2,846,563. Ultrasonic welder. **31**: 267—1959
Crownover, Joseph W. Patent 2,836,737. Piezoelectric transducer. **31**: 264—1959
—— **and Heiman W. Koren.** Patent 2,769,867. Dielectrostrictive signal and energy transducers. **31**: 1063—1959
—— (see Koren, Heiman W.). **31**: 1063—1959
Cunningham, Eldon R. Patent 2,756,013. Resilient mounting. **31**: 827—1959
Cunningham, James M. Patent 2,846,661. Electrical control system for magnetic recorder. **31**: 655—1959
Cupp, Frederick B. (see Frankel, Burton). **31**: 1703—1959
Currens, Ransom L. (see Nielson, Carl A.). **31**: 1554—1959
Currie, Gardner D. Patent 2,824,718. Mud decoupler. **31**: 1392—1959
Curriston, Loren E. Patent 2,867,405. Instrument shock mount. **31**: 1402—1959
Curtis, Gerald R. Patent 2,886,678. Electrical transducer. **31**: 1558—1959
Curtis, Roger C. (see Roberts, Frederick W.). **31**: 261—1959

da Costa, Harry. Patent 2,882,059. Pickup for phonographs. **31**: 1395—1959
Dale, Colin B. Patent 2,821,575. Tape recorders. **31**: 105—1959
—— Patent 2,866,010. Pocket tape recorder. **31**: 1292—1959
——, **Paul K. Bridenbaugh, and Raymond C. Bierman.** Patent 2,864,894. Magnetic tape recorder. **31**: 1292—1959
Daniel, Karl. Patent 2,853,923. Combined apparatus for the reproduction of sound and simultaneous projection of pictures. **31**: 392—1959
Daniel, Robert E. (see Doe, Robert E.). **31**: 1393—1959
Daniels, Fred B. Patent 2,823,974. Flash-to-sound recording system. **31**: 392—1959
Daria, James Vincent. Patent 2,846,915. Adjustable bridge for stringed musical instruments. **31**: 265—1959
Dasenbrook, Charles H. and Norman K. Dasenbrook. Patent 2,844,984. Upright piano action, **31**: 1699—1959
Dasenbrook, Norman K. (see Dasenbrook, Charles H.). **31**: 1699—1959
Dauguet, Alexandre. Patent 2,874,221. Stereophonic transmission system. **31**: 1691—1959
Davidson, Martin (see Yates, Wilfrid A.). **31**: 1160—1959
Dawkins, Lacy L. Patent 2,829,208. High-frequency tape recorder. **31**: 393—1959
DeCola, Rinaldo E., Reuben C. Carlson, and Alf F. Adel. Patent 2,868,156. Sonic wave generator. **31**: 1689—1959
DeGroff, Mark E. Patent 2,830,578. Electrosonic apparatus. **31**: 267—1959
Delort, Rene. Patent 2,815,087. Speaker cabinet. **31**: 391—1959
de Mars, Paul A. (see Burns, Harold S.). **31**: 1691—1959
de Raemy, Jacques. Patent 2,850,582. Magnetic head. **31**: 396—1959
Deremer, Floyd E. Patent 2,835,336. Silencer or muffler. **31**: 1558—1959
DeRosa, Thomas E. Patent 2,824,479. Music chord indicator. **31**: 1152—1959
DeTurk, John E. Patent 2,804,605. Magnetic recording playback circuits. **31**: 103—1959
Dick, Louis A. (see Leming, T. L.). **31**: 1691—1959
Dickey, Albert W. Patent 2,841,045. Beat rate indicator for musical instrument tunes. **31**: 107—1959
Dickie, John A. Patent 2,773,482. Fluid-operated vibration test exciter. **31**: 1405—1959
Dieter, Norman H., Jr., and Ignatius Michalko. Patent 2,849,239. Phonograph pickups. **31**: 263—1959
Dinsmore, Thomas L. Patent 2,822,426. Dictating machine. **31**: 105—1959
Doan, Wendell H. (see Hoshield, Bryce A.). **31**: 263—1959
Dobrin, Milton B. Patent 2,882,988. Elimination of near surface reflection effects. **31**: 1394—1959
Dodge, Robert D. Patent 2,875,967. Base structure for centrifugal machines. **31**: 1404—1959
Doe, Robert E., Robert E. Daniel, and Graham C. Alvey. Patent 2,871,970. Method and apparatus for amplifying seismic signals. **31**: 1393—1959
Doerr, Fred W. Patent 2,823,569. Piano-organ playing mechanism pedal. **31**: 1698—1959
Dolphin, Robert Neil. Patent 2,850,286. Record-playing apparatus. **31**: 1693—1959
Donald, Philip J. Patent 2,891,226. Pressure transducer apparatus. **31**: 1558—1959
Doncaster, Daniel P. Patent 2,873,978. Phonograph tone arm. **31**: 1060—1959
Doty, William E. N. and Milford R. Lee. Patent 2,874,795. Method and apparatus for determining the travel times of a signal propagated over a plurality of paths. **31**: 1393—1959
Doughty, Robert T. Patent 2,818,131. Muffler. **31**: 1155—1959
Draheim, Willi (see Genning, Ernst). **31**: 1151—1959
Dranetz, Abraham I. Patent 2,808,522. Accelerometer. **31**: 1561—1959
Dresser, Willis Robert. Patent 2,860,541. Wireless control for recording sound for stereophonic reproduction. **31**: 1059—1959
Dubilier, Philip. Patent 2,851,527. Sonic vibration detection apparatus. **31**: 829—1959
Dudley, John W. and Roy H. Malm. Patent 2,890,437, Sonar apparatus. **31**: 1703—1959
Duinker, Simon and Willem Klaas Westmijze. Patent 2,870,267. Arrangement for scanning and reproducing magnetic fields. **31**: 1557—1959
Duncan, Theodor R. Patent 2,876,670. Music comb with cast base. **31**: 1153—1959
—— Patent 2,886,328. Phonograph repeat mechanism. **31**: 1396—1959

Duntze, John A. (see Roberts, Frederick W.). **31**: 1062—1959
Dupuis, André L. M. (see Boubet, Charles). **31**: 1397—1959
Dyk, Karl (see Widess, Moses B.). **31**: 1394—1959

Eash, George H. (see Rowe, Horace N.). **31**: 99—1959
Eckel, Oliver C. Patent 2,826,261. Acoustical control apparatus. **31**: 822—1959
Efromson, Philip C. Patent 2,789,237. Electrodynamic vibration test equipment. **31**: 1159—1959
Ehrlich, Charles N. Patent 2,798,686. Shock-proof instrument mounting. **31**: 1561—1959
Eichwald, Bernard. Patent 2,899,499. Hearing device. **31**: 1697—1959
Eigen, David. Patent 2,885,485. Sound editing device. **31**: 1395—1959
Ekstrom, Marvin D. Patent 2,861,495. Double octave mechanism for accordions. **31**: 399—1959
Eldridge, Frank R., Jr. Patent 2,832,841. Data selecting and reproducing apparatus. **31**: 399—1959
Ellis, Steven G. (see Atkinson, Ralph B.). **31**: 397—1959
Epstein, Herman and Oscar B. Stram. Patent 2,846,654. Magnetostrictive delay line. **31**: 658—1959
—— **and Oscar B. Stram.** Patent 2,846,666. Magnetostrictive pulse delay apparatus. **31**: 266—1959
Erickson, Roger E. Patent 2,882,348. Hearing aid. **31**: 1290—1959
Evans, Arthur G. Patent 2,847,514. Automatic variable pitch control apparatus for disk recorders. **31**: 1692—1959

Fagan, Morton D. Patent 2,859,415. Ultrasonic acoustic wave transmission delay lines. **31**: 1065—1959
Faillace, Frank A. (see Michalko, Ignatius). **31**: 1291—1959
Farrand, William A., Lester L. Kilpartick, and Spencer G. Johnston. Patent 2,846,517. Magnetic head. **31**: 395—1959
Fauvelot, Pierre E. R. Patent 2,878,638. Soundproof and shock absorbing bearing for precision mechanisms. **31**: 1404—1959
Fay, James P. Patent 2,809,238. Apparatus for and method of recording. **31**: 103—1959
Feinstein, Lester. Patent 2,808,524. Inertia responsive electromechanical transducer. **31**: 1562—1959
Fender, Clarence L. Patent 2,817,708. Amplifier with tremolo. **31**: 1154—1959
Fenoglio, Charles. Patent 2,862,521. Vibration damping means for pressure sensitive devices. **31**: 1058—1959
Fenton, Edward N. (see Beecroft, Robert J.). **31**: 1391—1959
Ferguson, Henry B. (see Skelton, Jesse D.). **31**: 1393—1959
Fidellow, Ernest H. (see Thresher, Norman R.). **31**: 823—1959
Finkbeiner, Ernest. Patent 2,889,401. Intercommunication unit. **31**: 1557—1959
Finken, Walter S. Patent 2,879,343. Microphone support. **31**: 1059—1959
—— **and Jackson A. Aileo.** Patent 2,893,011. Sound attenuator helmet. **31**: 1689—1959
Fleischman, George P. Patent 2,764,260. Vibration dampening means for brakes, clutches, and the like. **31**: 1157—1959
Flury, Karl. Patent 2,850,569. Electric arrangement for speech transmission in two directions. **31**: 398—1959
Fogel, Lawrence J. Patent 2,866,848. Method of improving intelligence under random noise interference. **31**: 1958—1959
Frankel, Burton and Frederick B. Cupp. Patent 2,887,671. Echo elongator. **31**: 1703—1959
Franklin, John L. Patent 2,862,065. Announcing machines. **31**: 1061—1959
Freund, Rudolf E. (see Roberts, Frederick W.). **31**: 261—1959
Friess, Hans. Patent 2,844,663. Apparatus for recording orchestral sound. **31**: 1692—1959
—— Patent 2,854,528. Combined sound film and television apparatus. **31**: 392—1959
Fry, Frank J. Patent 2,852,019. Coupling means. **31**: 659—1959
Fryklund, Robert A. Patent 2,845,513. Echo-ranging devices. **31**: 401—1959
—— Patent 2,846,288. Depth-sounding devices. **31**: 268—1959
—— Patent 2,856,021. Transducer mounting system. **31**: 402—1959
—— Patent 2,869,109. Depth-sounding devices. **31**: 1066—1959
Fuchs, Alfred L., Jr. (see Jones, James Byron). **31**: 400—1959

Gadd, Charles W. Patent 2,764,020. Vibration pickup device. **31**: 1158—1959
Galyon, Clarence B. and Ralph E. Galyon. Patent 2,806,546. Speaker acoustic box. **31**: 100—1959
Galyon, Ralph E. (see Galyon, Clarence B.). **31**: 100—1959
Ganine, Peter. Patent 2,879,684. Musical comb construction. **31**: 1153—1959
Gardner, Priscilla Dodge. Patent 2,886,647. Personalized sound. **31**: 1555—1959
Gaubert, Rene J. Patent 2,821,576. Magnetic tape apparatus. **31**: 105—1959
Gazley, Richard C. Patent 2,756,952. Omnidirectional shock and vibration isolating device. **31**: 827—1959
Geissl, Franz. Patent 2,883,477. Transmitting devices for sound reproducers. **31**: 1395—1959
Gellman, Gerard. Patent 2,896,737. Extension loudspeaker. **31**: 1555—1959
Genning, Ernst, Willi Draheim, and Nikolaus Monske. Patent 2,866,009. Sound recording and sound reproducing apparatus. **31**: 1151—1959
George, Ralph W. Patent 2,876,599. Tuning apparatus. **31**: 1690—1959
Gernert, Lawrence H. Patent 2,861,134. Magnetic transducing head with mounting and adjustment means. **31**: 1061—1959
Gerstung, George W. Patent 2,860,722. Silencer. **31**: 1400—1959
Getline, Gordon L. Patent 2,761,638. Vibration-isolating power plant mounting system. **31**: 1400—1959
Gianola, Umberto F. and Robert L. Wallace, Jr. Patent 2,876,419. Magnetostriction devices. **31**: 1690—1959
Gibel, Stephen J. Patent 2,815,088. Muffler. **31**: 1155—1959
Giddings, Marsh B., Jr. (see Allison, Roy F.). **31**: 1147—1959
Gillette, Edward S. and Ralph H. Sherman, Jr. Patent 2,865,639. Folded belt record machine. **31**: 1556—1959
—— (see Roberts, Frederick W.). **31**: 1062—1959
Gillitzer, Erwin (see Spandöck, Friedrich). **31**: 102—1959
Ginsburgh, Irwin (see Jacobs, Robert B.). **31**: 1559—1959
Gladstone, William D. Patent 2,853,912. Hammer for percussion instruments. **31**: 1063—1959
Glassey, Courtney Q. Patent 2,871,972. Horn for loudspeaker. **31**: 1391—1959
Glenn, Glen R. Patent 2,852,616. Means for editing sound recordings. **31**: 656—1959
Gobbi, Diego. Patent 2,849,909. Electrically operated musical instrument. **31**: 399—1959
Goehner, William R. Patent 2,872,195. Sound track position compensation means for record drum-lead screw type translating device. **31**: 825—1959
—— **and Charles M. Taris.** Patent 2,846,518. Means for erasing a magnetic record. **31**: 395—1959
Goettner, Fritz E. Patent 2,808,121. High-fidelity sound reproducing apparatus. **31**: 100—1959
Goldenberg, Stephen R. Patent 2,886,327. Method and article for causing record players to repeat. **31**: 1396—1959
Goldmark, Peter C. Patent 2,858,374. Phonograph record and reproducing apparatus. **31**: 1694—1959
Goode, Kenneth E. Patent 2,809,005. Shock and vibration mount having nonrotational features. **31**: 1561—1959

Goodman, Claude, Jr. Patent 2,826,951. Piano attachment. **31**: 1698—1959
Gordon, James. Patent 2,790,843. Suspended wire vibration damping means. **31**: 1158—1959
Gorr, Walter O. Patent 2,880,639. Musical box construction. **31**: 1293—1959
Grabendörfer, Werner. Patent 2,846,875. Apparatus for locating defects. **31**: 658—1959
Gratian, Joseph W. Patent 2,850,581. Combination recording head. **31**: 396—1959
—— Patent 2,864,893. Magnetic recording head. **31**: 1151—1959
Gravley, Charles K. Patent 2,861,320. Fabricating dielectric electromechanical transducer elements. **31**: 1697—1959
Gray, John B. Patent 2,864,611. Recording and reproducing assembly. **31**: 1151—1959
Green, Milton. Patent 2,861,182. Logarithmic converter circuit. **31**: 1058—1959
Greene, Harry A., Jr. (see Jenkins, Charles D., Jr.). **31**: 823—1959
Greenwood, James H. Patent 2,830,130. Means for reproducing magnetic recordings. **31**: 349—1959
Greiner, Bruce R. Patent 2,826,643. Demagnetization system. **31**: 393—1959
Gribble, Dwight L. Patent 2,836,092. Pneumatic action for player piano. **31**: 1699—1959
Griest, Raymond Howard. Patent 2,788,457. Network for damping vibrations of mechanical structures. **31**: 1157—1959
—— (see Brower, David F.). **31**: 106—1959
Groom, Robert George. Patent 2,856,464. Tape transport apparatus. **31**: 545—1959
Guest, Lawrence V. Patent 2,841,399. Sound-reproducing apparatus using disk records. **31**: 262—1959
Gundling, Sebastian. Patent 2,805,595. Pipe organ valve action. **31**: 264—1959
Gunter, Lee, Jr. (see Bauer, Benjamin B.). **31**: 1696—1959
Gustafson, Gilbert E. and John T. Valaskovic. Patent 2,856,466. Hearing aids. **31**: 390—1959
Guthrie, Thomas E. Patent 2,861,494. Single string bass viol. **31**: 825—1959
Güttner, Werner and Günter Pickel. Patent 2,876,764. Ultrasonic treatment apparatus. **31**: 1702—1959
Guttwein, Gunther K. Patent 2,827,622. Recording vibration meter using angular modulation. **31**: 268—1959

Hall, J. A., Jr. Patent 2,864,167. System and apparatus for analysis of seismographic records. **31**: 1392—1959
Halliday, William. Patent 2,843,676. Means for producing dispersion in electrical oscillations. **31**: 106—1959
Hamann, Kenneth R. Patent 2,849,540. Binaural system. **31**: 102—1959
Hammonds, Laurens. Patent 2,846,913. Circular scale electrical musical instrument. **31**: 265—1959
Hanert, John M. Patent 2,828,659. Electrical musical instruments. **31**: 1700—1959
—— Patent 2,830,481. Electrical musical instruments. **31**: 265—1959
—— Patent 2,848,919. Tone intensity envelope control for electrical musical instruments. **31**: 266—1959
Hanes, Thomas E. Patent 2,824,444. Device for producing mechanical shocks. **31**: 1703—1959
Hansen, Jay M. Patent 2,852,618. Electromagnetic transducer. **31**: 397—1959
Hanz, Edward R. Patent 2,861,472. Torsional vibration damper. **31**: 1401—1959
Hardesty, Frederick L. Patent 2,830,116. Power megaphone. **31**: 261—1959
Hardway, Edward V., Jr. Patent 2,887,172. Well-logging methods and apparatus. **31**: 1555—1959
Harris, Robert V. Patent 2,875,354. Piezoelectric transducer. **31**: 1152—1959
Harris, Wilbur T. Patent 2,811,216. Acoustic baffle construction. **31**: 660—1959
—— Patent 2,842,689. Low-frequency magnetostrictive transducer. **31**: 107—1959
—— Patent 2,848,672. Self-excited transducer. **31**: 398—1959
—— Patent 2,876,427. Transducer. **31**: 1160—1959
—— Patent 2,888,583. Circuit element transducer. **31**: 1704—1959
Hartenstein, Raymond G. and James J. Kerley, Jr. Patent 2,873,109. Vibration isolating mounts. **31**: 1403—1959
Hartman, Herbert L. Patent 2,876,648. Variable speed phonograph drive mechanisms. **31**: 1695—1959
Hartsfield, William L. Patent 2,815,086. Convertible loudspeaker system. **31**: 391—1959
—— Patent 2,824,618. Sound-absorbing wall panels. **31**: 258—1959
Harwood, Robert H. Patent 2,824,387. Sonar simulator. **31**: 1065—1959
Haushalter, Fred L. Patent 2,795,036. Method of making a vibration damper. **31**: 1158—1959
—— Patent 2,795,037. Method of making a vibration damper. **31**: 1158—1959
Haviland, Horace N. Patent 2,845,830. Double drum beating apparatus. **31**: 1064—1959
Hawley, Mones E. Patent 2,812,826. Microphone converter. **31**: 391—1959
Haynes, William R. Patent 2,831,452. Filler pipe with sound signal. **31**: 258—1959
Heath, Wilfrid Paul. Patent 2,830,330. Means for acoustical correction and noise absorption. **31**: 1057—1959
Hedberg, Gösta (see Wennerbo, Erik). **31**: 1395—1959
Hedrich, Albert L. and Don R. Pardue. Patent 2,844,961. Ultrasonic flowmeter transducer mounting. **31**: 546—1959
Heerwagen, Paul K. Patent 2,796,636. Acoustic tile **31**: 258—1959
Heine, Henry W. Patent 2,825,420. Acoustical tile and method of manufacturing it. **31**: 1391—1959
Hennig, Gustav. Patent 2,806,365. Oscillation suppressing device. **31**: 1561—1959
Henry, Elliott A. Patent 2,842,959. Ultrasonic wave train generator. **31**: 545—1959
—— Patent 2,883,860. Automatic ultrasonic inspection. **31**: 1703—1959
Herr, Robert. Patent 2,861,133. Method and apparatus for the selective erasure of undesired transferred signals in magnetic recording. **31**: 1061—1959
Herrmann, Gunter. Patent 2,862,674. Sound tape winding reels. **31**: 1062—1959
Heurtier, Antoine. Patent 2,867,439. Sound reading device for kinematographic projectors. **31**: 1062—1959
Hill, Richard F. H. Patent 2,877,684. Film recorder. **31**: 1149—1959
Hills, Fielding B. (see Hoehn, John J.). **31**: 394—1959
Hilton, James C. Patent 2,837,598. Selective control and relative volumes indicator for voice and/or music amplifiers. **31**: 261—1959
Hirschorn, Martin. Patent 2,864,455. Exhaust noise abatement apparatus. **31**: 1560—1959
Hjalmar, Nils G. and Stig O. Juselius. Patent 2,764,019. Vibration measuring device. **31**: 1158—1959
Hoehn, John J. and Fielding B. Hills. Patent 2,838,305. Magnetic recording and reproducing apparatus. **31**: 394—1959
Hoffman, James D. Patent 2,872,516. Speaker assembly. **31**: 1392—1959
Hogan, William F. and Jack D. McNeal. Patent 2,844,212. Underwater speaking device. **31**: 263—1959

Hogue, Ephraim W. Patent 2,843,679. Capacity-type transducer. **31**: 656—1959
Hollmann, Hans E. Patent 2,858,373. High sensitive transducers with electromechanical feedback. **31**: 543—1959
Holman, Howard E. (see Anderson, Walter J.). **31**: 1153—1959
Honolka, Walter. Patent 2,870,257. Electrical signal transmission. **31**: 1696—1959
Hoodwin, Louis S. Patent 2,856,467. Compound diffraction horn. **31**: 259—1959
Horn, Charles E. Patent 2,846,874. Ultrasonic testing device. **31**: 1065—1959
Hornickel, Robert R. and Herbert R. Barnett. Patent 2,883,672. Device for protecting ears from noise. **31**: 1290—1959
—— (see Austin, Harry W.). **31**: 390—1959
Horsman, Gilbert A. Patent 2,867,492. Depth sounder keying and writing apparatus. **31**: 1066—1959
Hoshield, Bryce A. and Wendell H. Doan. Patent 2,828,361. Ladder truck communication system. **31**: 263—1959
House, Frank Rudolph. Patent 2,814,676. Tape stepping device for high-speed magnetic recording. **31**: 104—1959
Howey, Walter C. Patent 2,793,253. Telegraphone recording and reproducing system. **31**: 102—1959
Howry, Douglass H. Patent 2,833,999. Transducer. **31**: 398—1959
Hudimac, Albert A. and Robert C. Mathes. Patent 2,865,016. low frequency broad band underwater transducer. **31**: 1066—1959
Hults, Ellsworth H. (see Woodworth, Frederick B.). **31**: 261—1959
Hunter, Donald Gordon Neal (see Ridler, Desmond Sydney). **31**: 1150—1959
Hunter, Jonathan. Patent 2,869,799. Magnetic tape transport mechanism. **31**: 1556—1959
Hunter, Joseph E., Jr., and Norman W. Schubring. Patent 2,848,891. Apparatus for ultrasonic testing. **31**: 659—1959
Husarek, Vladimir (see Beaujard, Louis). **31**: 400—1959

Infeld, Otto. Patent 2,877,678. Fine tuning device for stringed instruments. **31**: 1153—1959
Itria, Oswald Alfonso. Patent 2,865,463. Determination of propagation characteristics of earth formations. **31**: 1392—1959

Jacobs, John H. Patent 2,880,281. Sound film recording system. **31**: 1149—1959
Jacobs, Robert B. and Irwin Gi burgh. Patent 2,862,570. Acoustic cap for stacks. **31**: 1559—1959
Jacokes, Benton D. (see Powers, Walter H.). **31**: 1400—1959
Jacomini, Gabriel J. Patent 2,864,274. Reed structure for musical instrument. **31**: 826—1959
Jaenke, Martin G. and Helmüt Reischl. Patent 2,883,456. Circuit arrangement for intercommunication systems. **31**: 1696—1959
James, Horace A. Patent 2,842,628. Driver dozer alarm. **31**: 542—1959
Janssen, Webster E. and Paul F. Murdock. Patent 2,820,391. Fingering indicator for keyboard musical instruments. **31**: 1698—1959
Jauquet, Jean. Patent 2,859,974. Pocket speaking devices. **31**: 1694—1959
Jenkins, Charles D., Jr., and Harry A. Greene, Jr. Patent 2,870,255. Microphone assembly. **31**: 823—1959
Jessen, Phillip L. Patent 2,884,608. Electromagnetic pressure transducer. **31**: 1558—1959
Jeung, Jasper L. (see Rosenberg, Harold W.). **31**: 825—1959
Johnson, Howard R. and Jesse Eugene Boyer. Patent 2,824,950. Ultrasonic coupling for welding rod. **31**: 1156—1959
Johnson, Kenneth W. Patent 2,778,628. Vibration isolator. **31**: 1157—1959
—— Patent 2,778,629. Vibration dampener. **31**: 1157—1959
—— Patent 2,867,434. Vibration dampener. **31**: 1402—1959
Johnson, Wayne R. Patent 2,836,651. Method of recording and reproducing wide-band signals. **31**: 394—1959
Johnston, Spencer G. (see Farrand, William A.). **31**: 395—1959
Johnston, William F. Patent 2,814,230. Piano teaching device. **31**: 1153—1959
Jones, Dramin Daniel. Patent 2,892,889. Acoustic equipment for auditorium sound systems. **31**: 1557—1959
Jones, James Byron, Alfred L. Fuchs, Jr., and William Rugh Bailey. Patent 2,833,238. Ultrasonic brazing unit. **31**: 400—1959
Jones, Lloyd R. (see Roberts, Frederick W.). **31**: 261—1959
—— (see Taylor, Douglas E.). **31**: 543—1959
Jones, William Melancthon. Patent 2,842,752. Geophones. **31**: 260—1959
Jonke, Joseph L. Patent 2,886,679. Electric pressure transducer. **31**: 1558—1959
Jordan, Edward James. Patent 2,885,024. Loudspeaker cabinets. **31**: 1554—1959
Joy, Ivan L. Patent 2,851,877. Vibration testing device. **31**: 1065—1959
Junger, Miguel C. Patent 2,840,179. Sound-absorbing panels. **31**: 1057—1959
Juricek, Frank D. Patent 2,889,732. Pedal operated tuning control for a stringed instrument. **31**: 1398—1959
Juselius, Stig O. (see Hjalmar, Nils G.). **31**: 1158—1959

Kaar, Ira J. Patent 2,864,897. Universal phonograph pickup head or the like. **31**: 1694—1959
Kaehms, Charles Gustav. Patent 2,852,707. Coupling liquid mechanism for ultrasonic vibrations. **31**: 826—1959
Kaplan, Jack and Frank T. Turner. Patent 2,872,578. Electromechanical resonant system. **31**: 1697—1959
Kappler, Melvin O. (see Pierce, Firth). **31**: 829—1959
Karolus, Roland (see Buchmann, Gerhard). **31**: 1392—1959
Katz, Peter. Patent 2,864,564. Portable magnetic recorder. **31**: 1291—1959
Kay, Ivan C. (see Saylor, Harrison H.). **31**: 264—1959
Kearney, Thomas J. Patent 2,831,785. Method and apparatus utilizing focused ultrasonic transducers to produce radially dispersed compression waves. **31**: 267—1959
—— Patent 2,842,143. Apparatus for ultrasonic cleaning of parts with a solvent. **31**: 545—1959
Kelly, Stanley. Patent 2,862,068. Transducers. **31**: 656—1959
Kennedy, Edward P. Patent 2,822,722. Motor synchronizing system for motion picture and magnetic sound tape apparatus. **31**: 105—1959
Kent, Allen H. Patent 2,893,738. Automatic sound reproducing device. **31**: 1695—1959
Keohane, Maurice J. Patent 2,868,892. Gramophone pickups. **31**: 1060—1959
Kerley, James J., Jr. (see Hartenstein, Raymond G.). **31**: 1403—1959
Kerr, James S. S. (see Smee, Peter G.). **31**: 1696—1959
Kettler, Alfred H. Patent 2,896,026. Sound powered phone. **31**: 1697—1959
Kiernan, Earl F. Patent 2,874,794. Method and apparatus for measurement of total sound power output of an ultrasonic transducer. **31**: 1702—1959
Kietz, Hans. Patent 2,883,642. Echo sounding recorder. **31**: 1562—1959
Kilpatrick, Lester L. (see Farrand, William A.). **31**: 395—1959
Kleiber, Joseph P. Patent 2,857,476. System of electromagnetic recording. **31**: 1061—1959
Kleis, Derk. Patent 2,831,060. Method of reproducing speech and music by means of loudspeakers. **31**: 1148—1959

Klingener, Harry F. Patent 2,840,644. Phonograph pickups. **31**: 262—1959
Knauert, William F. Patent 2,863,005. Magnetic insert earphone and inserts therefor. **31**: 657—1959
Knight, Cosler Donald. Patent 2,845,490. Rumble eliminator. **31**: 1692—1959
Knudsen, William C. Patent 2,877,859. Offshore seismic prospecting. **31**: 1394—1959
Kobler, Richard. Patent 2,844,661. Remotely controlled dictation recording systems. **31**: 655—1959
Kock, Winston E. Patent 2,872,994. Acoustic transmission systems. **31**: 1703—1959
Kohler, Frederick L. Patent 2,830,118. Unitary self-contained entertainment system and lectern. **31**: 261—1959
Koren, Heiman W. and Joseph W. Crownover. Patent 2,863,076. Dielectrostrictive signal energy transducers. **31**: 1063—1959
—— (see Crownover, Joseph W.). **31**: 1063—1959
Kornei, Otto. Patent 2,813,932. Magnetic transducer head and method of making same. **31**: 104—1959
—— Patent 2,866,011. Magnetic transducer head. **31**: 1292—1959
Kort, Ludwig. Patent 2,756,713. Methods of and means for reducing noises and vibrations produced by screw propellers of ships. **31**: 829—1959
Kratt, William. Patent 2,871,747. Plastic pitch pipe. **31**: 826—1959
—— Patent 2,871,748. Pitch pipes. **31**: 826—1959
Krauss, Serge L. Patent 2,806,953. Electronic oscillator for producing frequencies of musical tones. **31**: 259—1959
Krautkrämer, Herbert (see Krautkrämer, Josef). **31**: 400—1959
Krautkrämer, Josef and Herbert Krautkrämer. Patent 2,838,930. Device for nondestructive testing of materials by means of supersonic pulses. **31**: 400—1959
Kritz, Jack. Patent 2,831,348. Apparatus for suppressing undesirable modes in ultrasonic flowmeters. **31**: 267—1959
Kroft, Herbert M. (see Vore, Milton P.). **31**: 1296—1959
Kuhnert, Rudolf. Patent 2,886,649. Motion picture projector changing-over system for magnetic and optical scanning. **31**: 1397—1959
Kutik, Martin J. Patent 2,844,664. Remotely controlled dictation recording system. **31**: 656—1959
Kyle, Colin. Patent 2,804,644. Neck-forming device for making acoustic diaphragms. **31**: 100—1959

La Cavera, Frank J. Patent 2,851,680. Burglar alarm. **31**: 822—1959
Lalesse, Herman C. Patent 2,868,893. Dual needle phonograph pickup. **31**: 1060—1959
Lampe, Fritz (see Zecha, Ferdinand). **31**: 1059—1959
Laurence, Roger F. Patent 2,878,314. Loudspeaking telephone systems. **31**: 1696—1959
Lauterslager, Henk (see Boontje, Jan). **31**: 543—1959
Lawrence, Philip L. (see White, James E.). **31**: 543—1959
Leadon, Bernard M. (see Werner, Frank D.). **31**: 1701—1959
Lee, Milford R. (see Doty, William E. N.). **31**: 1393—1959
Lefevre-Selmer, Henrie. Patent 2,846,917. Neck key for saxophones. **31**: 658—1959
Legrand, Roger. Patent 2,878,403. Devices for the production of ultra sounds. **31**: 1698—1959
Lehman, Frank H. and Philip N. Lehr. Patent 2,853,557. Sound distribution system. **31**: 825—1959
Lehr, Philip N. Patent 2,890,297. Transducer assembly. **31**: 1555—1959
—— (see Lehman, Frank H.). **31**: 825—1959
Leistritz, Hans Karl. Patent 2,851,123. Exhaust installation for internal combustion engines. **31**: 658—1959
Leming, T. L. and Louis A. Dick. Patent 2,878,454. Piezoelectric crystal filter. **31**: 1691—1959
Leonard, Eugene. Patent 2,853,559. Signal transfer selector. **31**: 823—1959
Lester, John M. Patent 2,848,920. Key contact system for electronic organs. **31**: 266—1959
Levin, Jack J. Patent 2,877,477. Audible toothbrush. **31**: 1146—1959
Levy, Sidney E. Patent 2,832,828. Loudspeaker circuitry. **31**: 1148—1959
—— Patent 2,869,668. Plural drive loudspeaker. **31**: 1391—1959
Lewis, George. Patent 2,858,376. Bone conduction receiver mounting for combined hearing aid and spectacles. **31**: 655—1959
Lewis, George D. (see Blackman, Arthur W., Jr.). **31**: 1560—1959
Lewis, Robert C. Patent 2,810,842. Vibration generator. **31**: 1562—1959
Lilley, Esther A. Patent 2,874,229. Telephone. **31**: 1063—1959
Lin, Hung Chang. Patent 2,822,430. Transistor amplifier circuit. **31**: 1691—1959
—— Patent 2,857,462. Transistor amplifier circuit. **31**: 1059—1959
Logan, William W. Patent 2,834,839. Dictation-recording system. **31**: 262—1959
Lovejoy, John F. (see Bremer, De La Wilmore). **31**: 1294—1959
Lover, Seth E. Patent 2,896,491. Magnetic pickup for stringed musical instrument. **31**: 1558—1959
—— (see McCarty, Theodore M.). **31**: 1700—1959
Lowther, Wilfred W. Patent 2,833,368. Muffler. **31**: 1399—1959
Lubkin, Samuel and Edmund D. Schreiner. Patent 2,854,624. Magnetic tape processor. **31**: 1059—1959
Lucien, René. Patent 2,875,861. Vibration damper. **31**: 1403—1959
Lyon, William H. Patent 2,845,495. Long playing tape recording apparatus. **31**: 395—1959
—— Patent 2,856,462. Head drum assembly for magnetic tape. **31**: 397—1959
—— Patent 2,856,463. Rotary magnetic transducer means having yieldable heads. **31**: 398—1959
—— **and Lincoln Thompson.** Patent 2,826,642. Eraser for magnetically recorded bulk tape in roll form. **31**: 393—1959
—— (see Runge, Frank E.). **31**: 1061—1959

Ma, Si-hon. Patent 2,863,350. Mute for a stringed instrument. **31**: 825—1959
MacChesney, Chester M. Patent 2,846,516. Magnetic recording and reproducing apparatus. **31**: 395—1959
—— Patent 2,849,542. Apparatus for magnetic recording of sound on record cards. **31**: 396—1959
MacCutcheon, Richard H. Patent 2,852,604. Sound reproduction apparatus. **31**: 823—1959
MacDonald, Duncan N. Patent 2,862,715. Tape guiding system. **31**: 1150—1959
Machino, Torahachi. Patent 2,877,679. Chromatic harmonica. **31**: 1154—1959
Maclay, William R. and George W. Scott. Patent 2,863,004. Apparatus for manifesting intelligence on record media. **31**: 1151—1959
Macy, Alan C. (see Allison, Roy F.). **31**: 1147—1959
Malm, Roy H. Patent 2,865,014. Cyclic gain controls for sonar devices. **31**: 829—1959
—— (see Dudley, John W.). **31**: 1703—1959
Manhart, Robert A. and Aubra E. Tilley. Patent 2,850,108. Recording of seismic data and recorder operating conditions. **31**: 260—1959
Mann, Theodor H. and Theodore G. Mann. Patent 2,844,665. Magnetic recording device. **31**: 106—1959
Mann, Theodore G. (see Mann, Theodor H.). **31**: 106—1959

Maples, Richard E. Patent 2,851,526. Ventilated container. **31**: 397—1959
Marchand, Gaston A. and Donald W. Powers. Patent 2,862,069. Dynamic transducer. **31**: 657—1959
Marks, Graham W. (see Runquist, Ernest M.). **31**: 400—1959
Marks, Joseph D. Patent 2,862,716. Tone arm for sound reproduction. **31**: 1059—1959
Martin, Albert E. and Donald Mounfield. Patent 2,874,564. Sonic gas analyzers. **31**: 1689—1959
Martin, Daniel W. Patent 2,801,703. Diffused-tone cabinet for organs. **31**: 99—1959
—— Patent 2,801,704. Diffused-tone cabinet. **31**: 100—1959
—— Patent 2,853,145. Reverberation loudspeaker assembly. **31**: 266—1959
Mason, Avrel. Patent 2,764,702. Velocity transducer. **31**: 1159—1959
Mason, Lindon D. Patent 2,834, 426. Muffler. **31**: 1399—1959
Mason, Warren P. Patent 2,880,334. Ferroelectric torsional transducer. **31**: 1293—1959
Mastropietro, Vittorino (see Boschi, Antonio). **31**: 659—1959
Mathes, Robert C. (see Hudimac, Albert A.). **31**: 1066—1959
Mathot, Jacques (see Coutant, André Clément). **31**: 393—1959
Matthews, Charles L. Patent 2,812,825. Loudspeaker diaphragm supporting member. **31**: 391—1959
Matthews, Lyle E. and E. Quinby Smith, Jr. Patent 2,874,826. Shock and vibration isolation device. **31**: 1403—1959
Mattiat, Oskar E. Patent 2,877,432. Electromechanical filter elements. **31**: 1691—1959
Mazzeo, Rosario. Patent 2,867,146. Clarinet. **31**: 1699—1959
McAuley, James W. (see McCown, William E.). **31**: 1562—1959
McCarty, Theodore M. and Seth E. Lover. Patent 2,897,709. Electrical pickup for stringed musical instrument. **31**: 1700—1959
McCollum, Burton. Patent 2,851,121. Method and apparatus for seismic exploration. **31**: 260—1959
—— Patent 2,851,122. Seismic exploration methods, systems, and apparatus. **31**: 260—1959
McConnell, John H. Patent 2,883,478. Moving armature phonograph pickups. **31**: 1291—1959
McCown, William E. and James W. McAuley. Patent 2,890,354. Vibratory devices. **31**: 1562—1959
McDermott, Francis Roland. Patent 2,776,101. Method of and means for mounting a machine on a vibration absorbing pad. **31**: 659—1959
McKee, Richard W. Patent 2,824,979. Ultrasonic fissure detector. **31**: 1701—1959
McNally, James A. Patent 2,770,433. Pneumatic mounting system. **31**: 1295—1959
—— Patent 2,770,434. Pneumatic mounting system. **31**: 1295—1959
McNeal, Jack D. (see Hogan, William F.). **31**: 263—1959
McSkimin, Herbert J. Patent 2,839,731. Multifacet ultrasonic delay line. **31**: 400—1959
—— Patent 2,877,431. Temperature-stable ultrasonic delay lines. **31**: 1400—1959
Meng, Carl L. Patent 2,832,572. Wave-energy coupling device for ultrasonic energy. **31**: 399—1959
Mercurius, Randolph P. Patent 2,891,629. Acoustic tone equalizer. **31**: 1392—1959
Meri, Kaiju (see West, Ralph). **31**: 104—1959
Meyers, John J. Patent 2,808,122. Construction for dampening engine noise. **31**: 1057—1959
Michael, Paul L., Joseph Borsh, and John P. Strange. Patent 2,824,558. Ear plug. **31**: 1058—1959
Michalko, Ignatius and Frank A. Faillace. Patent 2,881,005. Phonograph pickups. **31**: 1291—1959
—— (see Dieter, Norman H., Jr.). **31**: 263—1959
Miessner, Benjamin F. Patent 2,813,447. Vibrator exciting action **31**: 1153—1959
—— Patent 2,826,109. Mounting arrangement for vibratory reeds. **31**: 1700—1959
—— Patent 2,834,243. Tone generators for electronic musical instruments. **31**: 265—1959
—— Patent 2,845,829. Key action for musical instrument. **31**: 1699—1959
Miller, Charles H. Patent 2,891,110. Amplifying devices for telephone hand sets. **31**: 1557—1959
Miller, Edward S. Patent 2,826,260. High-fidelity sound system. **31**: 1148—1959
Milne, Donald Y. Patent 2,844,210. Means for determining the effectiveness of sound-reducing means. **31**: 1553—1959
Minter, Jerry B., 2nd. Patent 2,794,605. Magnetic tape transducer mechanism. **31**: 103—1959
Moeller, Kurt G. F. Patent 2,849,871. Flexible noise isolating shaft coupling. **31**: 401—1959
—— Patent 2,867,130. Means for reducing gear noise. **31**: 1400—1959
Monske, Nikolaus (see Genning, Ernst). **31**: 1151—1959
Moore, Fred W. Patent 2,767,944. Supporting structure for clothes washing machines and the like. **31**: 1295—1959
Mordarski, Walter J. Patent 2,760,747. Shock mount. **31**: 828—1959
—— **and William H. Spencer.** Patent 2,762,600. Shock mount. **31**: 828—1959
Morgan, Adolph R. Patent 2,840,694. Portable radio transmitter with combination microphone horn and antenna. **31**: 392—1959
—— Patent 2,854,526. Magnetic recording. **31**: 544—1959
Morrell, George Arthur, Jr. Patent 2,846,519. Apparatus for pseudostereophonic sound reproduction. **31**: 262—1959
——, **Belford C. Angle, and Maurice M. Palo.** Patent 2,856,465. Dual pickup cartridge assembly for phonograph tone arms. **31**: 1694—1959
Morse, Milton. Patent 2,856,469. Earphone barrier device. **31**: 390—1959
Mosack, Anthony J. Patent 2,816,620. Audio modulating and control device. **31**: 1146—1959
Mossington, Manlius C. Patent 2,804,934. Radio speaker assembly. **31**: 100—1959
Mounfield, Donald (see Martin, Albert E.). **31**: 1689—1959
Mueller, Herman H. Patent 2,837,337. Automatic interlocking dual phonograph record player with selective control. **31**: 262—1959
—— Patent 2,841,400. Tone arm control for the fully automatic or manually controlled playing of intermixed records. **31**: 1556—1959
Muffly, Gary. Patent 2,832,839. Magnetic recording. **31**: 394—1959
Müller, Max Adolf. Patent 2,765,163. Resilient device. **31**: 1159—1959
Müller, Willy. Patent 2,850,570. Sound recording and reproducing apparatus in conjunction with a telephone subscriber set. **31**: 398—1959
Munroe, David J. Patent 2,766,840. Vibration absorber. **31**: 657—1959
Murdoch, Alexander, Jr. Patent 2,854,012. Sonic energy apparatus. **31**: 826—1959
—— Patent 2,874,316. Ultrasonic transducers. **31**: 1152—1959
Murdoch, Andrew M. Patent 2,844,741. Means for transmitting and receiving ultrasonic shear wave motion. **31**: 546—1959
Murdock, Paul F. (see Janssen, Webster E.). **31**: 1698—1959
Murro, Haim. Patent 2,888,267. Attachment for tone arm control in automatic record players. **31**: 1397—1959
Musser, Clair Omar. Patent 2,871,746. Toy musical instrument. **31**: 825—1959

—— Patent 2,873,639. Toy piano having key mounted tone bars. **31**: 1063—1959
Myers, Clarence W. Patent 2,764,004. Vibration dampener. **31**: 1157—1959

Nagai, Kenzo and Saburo Uemura. Patent 2,870,270. Magnetic reproducing systems. **31**: 1557—1959
Nelson, Charles E. Patent 2,850,111. Exhaust muffler. **31**: 1559
Ney, Theresa Q. Patent 2,807,183. Portable device for teaching music. **31**: 264—1959
Nichols, Nathan P. Patent 2,891,116. Hearing aid device. **31**: 1553—1959
Nickerson, Clifford A. Patent 2,880,279. Sound recording and reproducing apparatus. **31**: 1292—1959
Niederman, Bernard. Patent 2,859,416. Filter. **31**: 1059—1959
Nielson, Carl A., Theodore J. Bushey, and Ransom L. Currens. Patent 2,888,921. Ear inserts. **31**: 1554—1959
Noble, Stuart D. Patent 2,853,561. Sound reproducing system. **31**: 823—1959
Novak, Warren D. Patent 2,847,905. Sound and slide picture coordination system. **31**: 262—1959

O'Connor, Bernard E. Patent 2,777,544. Frequency-sensitive mechanical damping system. **31**: 659—1959
Oldenburg, Walter (see Scheller, Paul). **31**: 1692—1959
Olley, Maurice (see Bowser, Phillip C.). **31**: 401—1959
Olson, Harry F. and John Preston. Patent 2,814,353. Transducer with fluid-filled diaphragm suspension. **31**: 391—1959
—— **and John Preston.** Patent 2,858,375. Wide range dynamic phonograph pickup. **31**: 543—1959
Oncley, Paul B. Patent 2,842,021. Electronic musical instrument. **31**: 265—1959
Orlacchio, Anthony W. Patent 2,875,352. Blast gauge. **31**: 1691—1959
Orso, Leo. Patent 2,857,013. Dictation device. **31**: 655—1959
Osborne, Fred H. Patent 2,851,273. Automatic phonograph. **31**: 1693—1959
—— **and Howard G. Bauer.** Patent 2,844,983. Reed box for electronic organ. **31**: 1700—1959
Oshry, Howard I. and John W. Scheli. Patent 2,824,980. Piezoelectric transducers. **31**: 1397—1959
Overton, William C., Jr. Patent 2,878,886. Acoustic well logging with end shielding. **31**: 1394—1959
Oves, Edward (see Oves, Marks Martin). **31**: 826—1959
Oves, Marks Martin and Edward Oves. Patent 2,861,767. Unipod accordion support. **31**: 826—1959

Padberg, Louis R., Jr. Patent 2,866,512. Method of subsurface exploration by sonic means. **31**: 1392—1959
—— (see Parker, Frederick D.). **31**: 1704—1959
Page, Arthur W. Patent 2,826,259. Concussion protection for loudspeakers. **31**: 1147—1959
Page, Mark. Patent 2,879,685. Musical squeeze blocks. **31**: 1155—1959
Paige, Richard E. Patent 2,859,555. Sound emitting instrument. **31**: 1064—1959
Palmer, Rundlette K. Patent 2,839,606. Combination musical instrument case and public address system. **31**: 261—1959
Palo, Maurice M. Patent 2,848,559. Universal phonograph pickup cartridge. **31**: 1693—1959
—— (see Morrell, George Arthur, Jr.). **31**: 1694—1959
Pardue, Don R. (see Hedrich, Albert L.). **31**: 546—1959
Parker, Frederick D. and Louis R. Padberg, Jr. Patent 2,892,666. Echo ranging recording apparatus **31**: 1704—1959
Patterson, Wesley V. Patent 2,868,889. Electromagnetic head structure. **31**: 1152—1959
Pear, Charles B., Jr. Patent 2,828,459. Magnetic tape playback speed control system. **31**: 393—1959
Pearson, Charles, Jr. Patent 2,867,694. Disk record cutting means. **31**: 1060—1959
Pearson, John and John S. Rinehart. Patent 2,761,309. Method for determining high intensity transient stresses in impulsively loaded bodies. **31**: 1065—1959
Peirce, Thomas H. and James B. Robinson. Patent 2,764,038. Vibration damper. **31**: 1157—1959
Perkins, Robert L. Patent 2,864,892. Transducer mounting. **31**: 1151—1959
Perry, Charles A. (see Bobb, Lloyd J.). **31**: 1147—1959
Petermann, Lucien A. Patent 2,834,158. Ultrasonic drill. **31**: 400—1959
—— Patent 2,874,568. Ultrasonic flowmeter. **31**: 1702—1959
—— Patent 2,875,355. Ultrasonic zone plate focusing transducer. **31**: 1697—1959
Peterson, Richard H. Patent 2,818,759. Tuning means for electrical musical instrument. **31**: 265—1959
Pettus, James L. Patent 2,885,490. Direct positive sound recording system. **31**: 1291—1959
—— (see Albee, Arthur C.). **31**: 824—1959
Pfleger, Kenneth W. Patent 2,874,227. Ultra-low pass filter. **31**: 1690—1959
Pickel, Günter (see Güttner, Werner). **31**: 1702—1959
Pierce, Firth, George A. Brettell, Jr., Melvin O. Kappler, and Clark F. Bradley. Patent 2,854,764. Echo-ranging training device. **31**: 829—1959
Piety, Raymond G. Patent 2,888,089. Seismic exploration. **31**: 1555—1959
Plants, Berdell H. Patent 2,853,911. Fingerboard for stringed musical instrument. **31**: 399—1959
Posen, Sam. Patent 2,878,322. Eyeglass hearing aid construction. **31**: 1290—1959
—— Patent 2,894,076. Eyeglass hearing aid construction. **31**: 1553—1959
Potter, Van R. Patent 2,878,887. Acoustical device. **31**: 1554—1959
Poulton, Roy Ernest. Patent 2,848,558. Piezoelectric pickups. **31**: 1693—1959
Pourciau, Louis L. (see Athey, Skipworth W.). **31**: 543—1959
Powell, Edward V. Patent 2,883,898. Fipple flute. **31**: 1699—1959
Powers, Donald W. (see Marchand, Gaston A.). **31**: 657—1959
Powers, Walter H. and Benton D. Jacokes. Patent 2,834,427. Muffler having a cover and a retaining strip therefor. **31**: 1400—1959
Pranter, Lawrence A. Patent 2,885,208. Phonograph record player speed selector. **31**: 1396—1959
Preston, John (see Olson, Harry F.). **31**: 391, 543—1959
Proctor, Barton A. Patent 2,884,256. Tone arm control. **31**: 1396—1959
Pronio, Harry A. Patent 2,868,878. Portable lectern. **31**: 1059—1959
Puda, Chester K. (see Rhodes, Mordy M.). **31**: 656—1959

Quade, Edward A. Patent 2,854,525. Magnetic transducer. **31**: 397—1959

Radin, Bernard G. Patent 2,810,447. Rear seat speaker. **31**: 101—1959
Radomski, Joseph J., Allan R. Royle, and Carl M. Wenrich. Patent 2,877,302. Telephone equipment. **31**: 1063—1959
Raisbeck, Gordon. Patent 2,867,683. Equalization of aperture effect. **31**: 1151—1959
Ralls, Harry C., Jr. Patent 2,892,374. String conditioning and preserving. **31**: 1558—1959
Rankin, Alexander Bryce Calder. Patent 2,847,853. Measuring apparatus employing ultrasonic waves. **31**: 659—1959
—— Patent 2,871,381. Ultrasonic testing of materials. **31**: 1701—1959

Rawding, Burton R. Patent 2,866,911. Supports for vibratory devices. **31**: 1063—1959

Rawson, Emanuel. Patent 2,834,425. Exhaust muffler. **31**: 1399—1959

Read, Oliver. Patent 2,805,729. Loudspeaker enclosure. **31**: 100—1959

Redlich, Horst. Patent 2,854,527. Magnetic sound recording and reproducing apparatus. **31**: 544—1959

Reeves, Charles E. Graham. Patent 2,882,853. Mechanism for operating a signaling device. **31**: 1291—1959

Rehorn, Miles P. Patent 2,854,310. High-frequency recording. **31**: 824—1959

Reiback, Earl M. Patent 2,875,282. Binaural phonograph pickup. **31**: 1060—1959

Reis, Charles S. Patent 2,866,013. Magnetic record method and apparatus. **31**: 1292—1959

Reischl, Helmüt (see Jaenke, Martin G.). **31**: 1696—1959

Reiskind, Hillel I. Patent 2,852,254. Magentic recorder. **31**: 1149—1959

Repici, Dominic J. Patent 2,874,418. Method of fabrication of condenser strip hydrophones. **31**: 1160—1959

Rescsanski, Joseph A. (see Taylor, Douglas E.). **31**: 1696—1959

Rettinger, Michael. Patent 2,861,135. Magnetic heads and replaceable pole cap assemblies therefor. **31**: 1061—1959

Reynolds, Donald K. Patent 2,793,344. Magnetic record testing means. **31**: 103—1959

Reynolds, Elmer E. Patent 2,832,829. Electromagnetic attenuator. **31**: 1146—1959

Reynolds, Vining T. Patent 2,875,017. Vibration recording device. **31**: 1393—1959

Rhoades, Robert B. Patent 2,845,230. Mechanism for wire and tape recording and playing apparatus. **31**: 395—1959

Rhodes, Mordy M. and Chester K. Puda. Patent 2,837,339 Phonograph pickup. **31**: 656—1959

Rich, Stanley R. Patent 2,873,392. Supports for mechanical vibrators. **31**: 1697—1959

Richter, Albert. Patent 2,887,882. Pressure-voltage transducing element. **31**: 1558—1959

Richter, Donald L. Patent 2,846,230. Phonograph record. **31**: 656—1959

Ridler, Desmond Sydney and Donald Gordon Neal Hunter. Patent 2,863,003. Hybrid balancing network for a magnetic recorder. **31**: 1150—1959

Riggs, John H. Patent 2,848,557. Automatic volume level control for phonographs. **31**: 1692—1959

Rinehart, John S. (see Pearson, John). **31**: 1065—1959

Roberts, Frederick W. Patent 2,857,165. Sound recording and reproducing apparatus. **31**: 545—1959

——, **Roger C. Curtis, Lloyd R. Jones, and Rudolf E. Freund.** Patent 2,833,860. Dictation system. **31**: 261—1959

——, **Edward S. Gillette, John A. Duntze, and Arthur W. Skoog.** Patent 2,865,637. Sound recording and reproducing apparatus. **31**: 1062—1959

Robey, Donald H. Patent 2,839,695. Frequency controllable piezoelectric resonator. **31**: 398—1959

Robinson, James B. (see Peirce, Thomas H.). **31**: 1157—1959

Roccati, Arnold J. Patent 2,861,768. Vibration isolation system and instrument mount. **31**: 401—1959

Romeo, John. Patent 2,853,826. Audible fishing lure. **31**: 401—1959

Roop, Robert W. (see Cavalieri, Albert L., Jr.). **31**: 1690—1959

Rosa, Gilbert N. Patent 2,867,121. Pressure transducer. **31**: 1397—1959

Rosenberg, Harold W., Jasper L. Jeung, and Hadyn L. Smith. Patent 2,851,537. Audio system for drive-in theater. **31**: 825—1959

Roth, Herman P. Patent 2,858,544. Noise attenuating device. **31**: 822—1959

Roulet, Jean Louis. Patent 2,824,617. Sound reproducing device. **31**: 1149—1959

Rowe, Horace N. and George H. Eash. Patent 2,798,121. Electropneumatic loudspeaker. **31**: 99—1959

Royle, Allan R. (see Radomski, Joseph J.). **31**: 1063—1959

Roys, Henry E. and Dallas R. Andrews. Patent 2,848,556. Magnetic recording transducer. **31**: 396—1959

Rudd, Walter W. and James E. Benson. Patent 2,811,215. Sound reproducing apparatus. **31**: 101—1959

Rudnick, Norman. Patent 2,807,521. Method of adjusting the resonant frequency of a vibrating system. **31**: 1063—1959

Rudser, Melnor C. (see Wallace, Russell B.). **31**: 1061—1959

Runge, Frank E. Patent 2,859,973. Turntable changing mechanism for magnetic recorder. **31**: 1150—1959

——, **William H. Lyon, and Donald F. Balmer.** Patent 2,860,191. Turntable for magnetic recorder. **31**: 1061—1959

Runge, Richard J. Patent 2,872,996. Seismic wavelet contraction. **31**: 1393—1959

Rundquist, Ernest M. and Graham W. Marks. Patent 2,833,142. Ultrasonic, high-pressure interferometer. **31**: 400—1959

Sadowsky, Meier. Patent 2,892,950. Vibration or shock detecting device. **31**: 1562—1959

Saylor, Harrison H. and Ivan C. Kay. Patent 2,830,483. Attachment for the mouthpiece of musical instruments. **31**: 264—1959

Schell, John W. (see Oshry, Howard I.). **31**: 1397—1959

Scheller, Paul, Walter Oldenburg, and Joseph Cimiotti. Patent 2,845,271. Record changing device. **31**: 1692—1959

Schenkel, Gerrit. Patent 2,852,627. Telephone and microphone. **31**: 657—1959

Schlafly, Hubert J., Jr. Patent 2,847,513. Sound effect control. **31**: 824—1959

Schreiner, Edmund D. (see Lubkin, Samuel). **31**: 1059—1959

Schubring, Norman W. (see Hunter, Joseph E., Jr.). **31**: 659—1959

Schultz, Theodore J. Patent 2,836,656. Acoustic wattmeter. **31**: 392—1959

Schulze, Harald. Patent 2,873,391. Methods and means for coupling an ultrasonic transducer to a test specimen. **31**: 1702—1959

Schutz, Nicolas Pierre and Ralph William Weedgate. Patent 2,853,824. Submarine echo-sounding apparatus for fishing vessels. **31**: 402—1959

Schuyler, Ralph A. Patent 2,838,959. Transmission for magnetic sound recording machines. **31**: 394—1959

Schwarz, Karl Georg and Hans-Christoph Wohlrab. Patent 2,810,020. Magnetic head for sound-recording apparatus and the like. **31**: 104—1959

Scott, George W. (see Maclay, William R.). **31**: 1151—1959

Scott, Joseph F. Patent 2,847,891. Music box mounts. **31**: 266 1959

—— Patent 2,882,778. Musical toy piano with music box. **31**: 1293—1959

Searles, Thomas F. Patent 2,893,282. Tone varying attachment for a string musical instrument. **31**: 1699—1959

Sebok, Joseph B. and Ralph E. Sendelbach. Patent 2,822,885. Air cleaner and intake silencer assembly. **31**: 1293—1959

Seeler, Charles E. (see Bauer, Benjamin B.). **31**: 1696—1959

Selsted, Walter T. Patent 2,838,314. Magnetic tape apparatus. **31**: 105—1959

—— Patent 2,862,677. Magnetic tape reel assembly. **31**: 1062—1959

Sendelbach, Ralph E. (see Sebok, Joseph B.). **31**: 1293—1959

Sewell, Robert L. Patent 2,806,547. Enclosures for sound reproduction. **31**: 100—1959

Shaw, David B. (see Athey, Skipworth W.). **31**: 543—1959

Sheldon, Edward Emanuel. Patent 2,848,890. Apparatus for supersonic examination of bodies. **31**: 659—1959

Sherman, Ralph H., Jr. (see Gillette, Edward S.). **31**: 1556—1959
—— (see Taylor, Douglas E.). **31**: 1696—1959
Sherwood, Henry A. Patent 2,831,070. Silent dictation mask. **31**: 1149—1959
—— Patent 2,877,020. Tone arm structure for sound equipment. **31**: 1395—1959
Shimizu, Takakuni. Patent 2,797,765. Loudspeaker mounted in front panel of open-back cabinet. **31**: 99—1959
Shipman, Carl N. Patent 2,846,515. Automatic rerecording system. **31**: 655—1959
Shively, John J. Patent 2,835,737. Telephone answering and recording devices. **31**: 262—1959
Sietam, Don E. (see Austin, Harry W.). **31**: 390—1959
Sihvonen, Kauno E. Patent 2,783,643. Resonant pickup device. **31**: 660—1959
Simjian, Luther G. Patent 2,830,912. Method of tenderizing food. **31**: 268—1959
Simpson, Edgar H. Patent 2,822,884. Loudspeaker enclosure. **31**: 1147—1959
Sinisterra, Federico. Patent 2,775,317. Shock and vibration damping device. **31**: 1401—1959
Skellett, Albert M. Patent 2,843,678. Magnetized record signal reproduction system. **31**: 106—1959
Skelton, Jesse D. and Henry B. Ferguson. Patent 2,876,428. Seismic section printer. **31**: 1393—1959
Skoog, Arthur W. (see Roberts, Frederick W.). **31**: 1062—1959
—— (see Taylor, Douglas E.). **31**: 1696—1959
Skowronski, Raymond F. Patent 2,831,668. Ultrasonic stone cutting device. **31**: 267—1959
Slayter, Games. Patent 2,841,237. Muffler structure. **31**: 1559—1959
Smee, Peter G. and James S. S. Kerr. Patent 2,882,339. Passive conference circuit. **31**: 1696—1959
Smith, Alonzo L. Patent 2,850,584. Bone conduction hearing-aid clamps. **31**: 390—1959
Smith, E. Quinby, Jr. (see Matthews, Lyle E.). **31**: 1403—1959
Smith, Eric J. (see Brooke, Thomas A.). **31**: 1403—1959
Smith, Frederic C. Patent 2,873,306. Hearing aid. **31**: 1290—1959
Smith, Hadyn L. (see Rosenberg, Harold W.). **31**: 825—1959
Smith, Harrison C. Patent 2,858,477. Exclusion arrangement for loudspeaking telephone systems. **31**: 1293—1959
Smith, Louis E., Jr. Patent 2,869,108. Sonic radio link wave height meter. **31**: 1065—1959
Smith, William R. Patent 2,882,834. Toy locomotive sound effects. **31**: 1291—1959
Smith-Johannsen, Robert. Patent 2,879,413. Phonograph pickups. **31**: 1291—1959
Söderbaum, Carl Gustaf. Patent 2,895,007. Telephone installation. **31**: 1557—1959
Spandöck, Friedrich and Erwin Gillitzer. Patent 2,810,786. Directional microphone system. **31**: 102—1959
Sparks, Neil R. Patent 2,846,662. Receiving seismic waves directionally. **31**: 260—1959
Spears, Douglas E. Patent 2,817,705. Prompting device. **31**: 1146—1959
Speck, Josef. Patent 2,818,132. Exhaust silencer. **31**: 1156—1959
Spencer, James M. Patent 2,818,760. Modulation system for electrical musical instrument. **31**: 1154—1959
Spencer, William H. (see Mordarski, Walter J.). **31**: 828—1959
Staar, Marcel Jules Helene. Patent 2,838,315. Means for centering gramophone records. **31**: 656—1959
Stalker, Edward A. Patent 2,877,980. Vibration dampers for gas turbine wheels and the like. **31**: 1404—1959
Stanton, Austin N. Patent 2,829,520. Pressure responsive transducers. **31**: 259—1959
Statham, Louis D. Patent 2,764,658. Electric accelerometer. **31**: 1158—1959
—— Patent 2,783,342. Electric transducer. **31**: 660—1959
—— Patent 2,867,115. Means for extending range of transducers. **31**: 1397—1959
—— Patent 2,867,706. Pressure sensitive resistor. **31**: 1398—1959
Steinegger, Giovanni. Patent 2,819,350. Sound recording and reproducing device. **31**: 105—1959
—— Patent 2,853,888. Operating device for a sound recording and reproducing apparatus. **31**: 824—1959
Stephens, Frank H., Jr. Patent 2,825,419. High-fidelity speaker enclosure combination. **31**: 1147—1959
Stern, Arthur (see Cooper, Benjamin). **31**: 1689—1959
Stoakes, James D. (see Bodine, Albert G., Jr.). **31**: 1703—1959
Strange, John P. (see Michael, Paul L.). **31**: 1058—1959
Sullivan, Herbert W. Patent 2,797,766. Loudspeaker. **31**: 99—1959
Summers, Gerald C. Patent 2,857,011. Noise-sensitive control of acoustic well logging systems. **31**: 542—1959
Sussman, Harry. Patent 2,775,749. Mass-loaded ring vibrator. **31**: 107—1959
—— Patent 2,802,984. Testing apparatus. **31**: 102—1959
—— Patent 2,884,084. Acoustic panel. **31**: 1406—1959
Suter, Curtis W. Patent 2,851,271. Child's exercise, amusement, and education device. **31**: 542—1959
Swanson, Norman. Patent 2,820,863. Sound tape operated switching mechanism. **31**: 105—1959
Switzer, Robert C. Patent 2,856,538. Ultrasonic penetrant method of flaw detection. **31**: 827—1959

Tankus, Harry. Patent 2,798,750. Rotary mechanical seal and vibration dampening means therefor. **31**: 1561—1959
Taris, Charles M. (see Goehner, William R.). **31**: 395—1959
Tascher, Paul J. Patent 2,875,521. Abrasive flux and flush control system for dental apparatus. **31**: 1560—1959
Taylor, Douglas E. and Lloyd R. Jones. Patent 2,858,475. Dictation system. **31**: 543—1959
——, **Ralph H. Sherman, Jr., Arthur W. Skoog, and Joseph A. Rescsanski.** Patent 2,847,223. Sound recording and reproducing apparatus. **31**: 1696—1959
Teikowski, Edward D. Patent 2,831,051. Vibrato producing loudspeaker. **31**: 1148—1959
Tennes, Charles J. Patent 2,806,954. Oscillator for musical instrument. **31**: 265—1959
Textrom, Ralph. Patent 2,864,610. Endless-belt recorder apparatus. **31**: 1291—1959
Theriault, Gerald E. Patent 2,851,540. Transistor signal translating circuit. **31**: 263—1959
Thiele, Heinz. Patent 2,852,617. Magnet head. **31**: 397—1959
—— Patent 2,862,066. Means for recording and reproducing acoustic signals. **31**: 1150—1959
Thiry, Leon F. Patent 2,785,458. Apparatus for making precision antivibration mountings. **31**: 660—1959
Thompson, Lincoln (see Lyon, William H.). **31**: 393—1959
Thresher, Norman R. and Ernest H. Fidellow. Patent 2,855,460. Control device for audio reproducing systems including a crossover network. **31**: 823—1959
Thurston, Edward G. Patent 2,841,648. Sound producing device. **31**: 259—1959
Tibbetts, George C. Patent 2,877,362. Transducer sealing. **31**: 1697—1959
—— Patent 2,877,363. Transducer leads. **31**: 1697—1959
Tibbets, Raymond W. Patent 2,810,082. Transducer damping. **31**: 107—1959
Tilley, Aubra E. Patent 2,879,860. Seismic prospecting utilizing trace integration. **31**: 1394—1959
—— (see Blake, Francis G.). **31**: 260—1959
—— (see Manhart, Robert A.). **31**: 260—1959

Toomey, Eugene J. Patent 2,896,024. Hearing aid having directional reception characteristics. **31**: 1554—1959
Towle, George B., Richard L. Vasquez, and Arthur E. Wetherbee, Jr. Patent 2,866,316. Thrust reversing and silencing. **31**: 1560—1959
Trommler, Herbert. Patent 2,832,214. Arrangement for ultrasonic material testing. **31**: 399—1959
Troppe, Frederick J. Patent 2,858,724. Multiple-tone drum. **31**: 1064—1959
Trucker, Clarence W. and Clifford W. Andersen. Patent 2,807,295. Piano hammer felt press. **31**: 264—1959
Tullos, Frank N. Patent 2,868,311. Acoustic impedance logging. **31**: 1392—1959
Turner, Frank T. (see Kaplan, Jack). **31**: 1697—1959
Tyskewicz, John P. (see Bourne, Roland B.). **31**: 1295—1959

Uemura, Saburo (see Nagai, Kenzo). **31**: 1557—1959
Unholtz, Karl (see Booth, Galt B.). **31**: 660—1959

Valaskovic, John T. (see Gustafson, Gilbert E.). **31**: 390—1959
Van Atta, Lester Clare. Patent 2,839,735. Underwater sound reflector. **31**: 108—1959
Van Valkenburg, Howard E. and Edward G. Cook. Patent 2,839,916. Ultrasonic thickness gauge. **31**: 400—1959
Vasquez, Richard L. (see Towle, George B.). **31**: 1560—1959
Vasset, Andre (see Beaujard, Louis). **31**: 400—1959
Vermeulen, Roelof. Patent 2,870,265. Magnetic recording device. **31**: 1556—1959
Vore, Milton P. and Herbert M. Kroft. Patent 2,770,741. Vibration pickup. **31**: 1296—1959

Walker, Hugh O., Jr. Patent 2,885,023. Reflection seismic exploration method. **31**: 1555—1959
Wallace, Frank B. Patent 2,874,231. Ear mounted hearing aid device. **31**: 1058—1959
Wallace, John D. Patent 2,853,692. Magnetostrictive transducer lamination. **31**: 657—1959
Wallace, Robert L., Jr. (see Gianola, Umberto F.). **31**: 1690—1959
Wallace, Russell B. and Melnor C. Rudser. Patent 2,862,064. Head mount. **31**: 1061—1959
Wallin, Robert E. Patent 2,796,149. Vibration dampening attachment. **31**: 1158—1959
Walsh, Robert. Patent 2,781,991. Engine mounting. **31**: 1401—1959
Waters, Wilbur W. Patent 2,835,157. Upright piano action. **31**: 1698—1959
Weathers, Paul. Patent 2,866,856. Controlled oscillator systems. **31**: 1060—1959
Webb, Horace L. Patent 2,848,565. Soundproof mask for hand microphone. **31**: 392—1959
Webster, John C. Patent 2,869,666. Automatically recording pitch matching equipment. **31**: 822—1959
Weedgate, Ralph William (see Schutz, Nicolas Pierre). **31**: 402—1959
Weiss, Mortimer E. Patent 2,831,295. Ultrasonic drill. **31**: 267—1959
Wennerbo, Eric. Patent 2,851,891. Multispeed turntable drive. **31**: 1693—1959
—— Patent 2,886,329. Tone arm and control means therefor. **31**: 1396—1959
—— **and Gösta Hedberg.** Patent 2,884,255. Adapter for phonograph spindles. **31**: 1395—1959
Wenrich, Carl M. (see Radomski, Joseph J.). **31**: 1063—1959
Went, Jan Jacobus and Willem Klaas Westmijze. Patent 2,854,524. Apparatus for magnetically recording on a carrier of magnetic material. **31**: 544—1959
Werner, Frank D. Patent 2,841,440. Air noise eliminator attachment for vehicles. **31**: 545—1959
—— **and Bernard M. Leadon.** Patent 2,878,055. Noise reducing device for vehicle windows. **31**: 1701—1959
Werner, Richard E. Patent 2,887,532. Audio-frequency amplifier. **31**: 1689—1959
West, Ralph and Kaiju Meri. Patent 2,810,791. Record playback system for magnetic recording. **31**: 104—1959
Westmijze, Willem Klaas. Patent 2,870,266. Annular magnet head of the kind comprising a solid core for magnetic recording and reproduction. **31**: 1557—1959
—— (see Duinker, Simon). **31**: 1557—1959
—— (see Went, Jan Jacobus). **31**: 544—1959
Wetherbee, Arthur E., Jr. (see Towle, George B.). **31**: 1560—1959
White, Gifford E. Patent 2,789,192. Vibrometers. **31**: 1159—1959
White, James E. and Philip L. Lawrence. Patent 2,861,645. Seismic wave analysis. **31**: 543—1959
Widess, Moses B. and Karl Dyk. Patent 2,880,816. Seismic surveying with shear waves. **31**: 1394—1959
Wiegand, David E. Patent 2,828,368. Magnetic reproduction system. **31**: 393—1959
—— Patent 2,849,543. Magnetic playback system. **31**: 396—1959
—— Patent 2,855,464. Electromagnetic head. **31**: 544—1959
—— Patent 2,855,465. Magnetic modulator head for narrow track records. **31**: 545—1959
—— Patent 2,855,466. Magnetic transducer head. **31**: 397—1959
—— **and James E. Ancell.** Patent 2,848,560. Hearing-aid receiver. **31**: 390—1959
Wiener, Bernard A. Patent 2,859,836. Vibration damper for towed cables, periscopes, and the like. **31**: 829—1959
Wijchman, Jan. Patent 2,849,893. Recording device for magnetic records. **31**: 824—1959
Williams, Richard E. Patent 2,818,761. Electronic tone generator. **31**: 1154—1959
—— Patent 2,819,409. Photoelectric tone generator. **31**: 1154—1959
Williamson, David Theodore Nelson. Patent 2,854,529. Gramophone pickup heads. **31**: 1694—1959
Willits, Hobart I. Patent 2,834,244. Orchestral and band drum with improved shell. **31**: 264—1959
Willsea, Jasper. Patent 2,831,547. Method of and apparatus for silencing the exhaust of internal combustion engines. **31**: 1399—1959
Wilman, Sigismond. Patent 2,808,896. Exhaust mufflers for internal combustion engines. **31**: 1155—1959
Wilson, Robert. Patent 2,830,201. Electroacoustic transducer with acoustic coupling means. **31**: 266—1959
Witchey, Albert L. Patent 2,806,544. Sound sources for microphone calibration. **31**: 100—1959
Witkowiak, Leon J. Patent 2,820,960. Church bell ringers. **31**: 1063—1959
Woestemeyer, Francis B. Patent 2,811,344. Acceleration responsive system. **31**: 1562—1959
Wohlrab, Hans-Christoph (see Schwarz, Karl Georg). **31**: 104—1959
Wolf, Alfred. Patent 2,872,995. Seismic reflection prospecting technique. **31**: 1393—1959
Wolfe, Charles M. Patent 2,846,656. Electrical pressure detecting device. **31**: 260—1959
Wolfe, Wallace V. Patent 2,791,640. Magnetic sound recording. **31**: 102—1959
Wood, Frederic E. Patent 2,852,088. Damping plate. **31**: 107—1959
Wood, John F. Patent 2,851,541. Electromechanical transducer. **31**: 263—1959
—— Patent 2,852,619. Phonograph cartridge. **31**: 263—1959

Woodbury, George. Patent 2,827,124. Dual passage muffler. **31**: 1294—1959

Woodworth, Frederick B. and Ellsworth H. Hults. Patent Re. 24,467. Public address system for subway trains. **31**: 261—1959

Wright, Gilbert M. Patent 2,895,126. Noiseless device for generating audible voice frequencies including harmonics. **31**: 1701—1959

Wurdel, Günther. Patent 2,891,294. Electrodynamic receiving apparatus. **31**: 101—1959

Wylezik, Curt. Patent 2,888,090. Loudspeaker arrangement. **31**: 1554—1959

Wysong, Donald G. Patent 2,875,988. Mechanical vibrator. **31**: 1405—1959

Yates, Wilfrid A. and Martin Davidson. Patent 2,796,756 Vibration calibrator. **31**: 1160—1959

Young, Francis W. Patent 2,757,690. Metal hose vibration damper. **31**: 828—1959

Young, James Peter. Patent 2,812,033. Acoustic baffle. **31**: 390—1959

Zecha, Ferdinand and Fritz Lampe. Patent 2,861,862. Dictation apparatus. **31**: 1059—1959

Zimmerman, Harry. Patent 2,826,954. Toy pianos. **31**: 265—1959

Zimmermann, Joseph J. Patent 2,854,512. Close coupled telephone answering and message recording device. **31**: 398—1959

THE JOURNAL OF THE ACOUSTICAL SOCIETY OF AMERICA VOLUME 31, NUMBER 12 DECEMBER, 1959

Analytic Subject Index to Volume 31

Numerals in boldface type refer to volume numbers.

0. General, Unclassified

0.1 Errata

Absorption of sound by a strip of absorptive material in a diffuse sound field. T. D. Northwood, M. T. Grisaru, and M. A. Medcof. **31**: 1141—1959

Exact analysis of the plane-strain vibrations of thick-walled hollow cylinders. Denos C. Gazis. **31**: 250—1959

New fellows of the Acoustical Society of America. **31**: 1271—1959

0.2 Conferences, Lectures, and Announcements, not of the Acoustical Society

Acoustica Associates, Inc., opens a new plant in Plainview, Long Island, New York. **31**: 1269—1959

Acoustical reports available from the Department of Commerce. **31**: 1388—1959

Announcement of international meeting on phonetics in Hamburg, September, 1960. **31**: 1540—1959

Demonstration meeting in biological acoustics in London, July, 1958. **31**: 83—1959

Fifteenth Annual National Electronics Conference. **31**: 638—1959

Fifth National Communications Symposium. **31**: 1687—1959

Fluid Dynamics Meeting at the University of Michigan in November, 1959. **31**: 1269—1959

Fourth U. S. Congress of Applied Mechanics—1962. **31**: 253—1959

General Radio completes its move to Concord, Massachusetts. **31**: 1144—1959

German conference on noise in moving vehicles. **31**: 373—1959

Incorporation of Cambridge Acoustical Associates. **31**: 1270—1959

International Commission on Acoustics. **31**: 253—1959

International Congress on the Modern Educational Treatment of Deafness. **31**: 539—1959

IRE Professional Group on Ultrasonic Engineering plans National Ultrasonics Symposium. **31**: 539—1959

Joint autumn meeting of the British Society of Rheology and the Acoustics Group of the Physical Society of London. **31**: 1685—1959

Joint meeting of the Acoustics Group of the Physical Society of London and the British Society of Rheologists. **31**: 637—1959

Journal of Research of the National Bureau of Standards. **31**: 1389—1959

Midwestern Conference on Fluid and Solid Mechanics at the University of Texas, September 9–11, 1959. **31**: 1040—1959

New oceanographic research vessel placed in service by the Navy. **31**: 373—1959

New Research Center of CBS Laboratories in Stamford, Connecticut. **31**: 82—1959

New society of heating refrigerating and air-conditioning engineers. **31**: 638—1959

Recent European research in acoustics as noted in European scientific notes of ONR. **31**: 1540—1959

Sixth annual meeting of CHABA in Washington, D. C., October 28 and 29, 1958. **31**: 539—1959

Speech communication in the *Journal of the Acoustical Society of Japan*. **31**: 373—1959

Stress measurement symposium at Arizona State University. **31**: 1687—1959

Third International Congress on Acoustics. **31**: 636—1959

Third International Congress on Acoustics in Stuttgart, September 1–8, 1959. **31**: 1684—1959

Third International Congress on Acoustics, Stuttgart, September, 1959. **31**: 539—1959

Thirtieth Anniversary Meeting of Society of Rheology. **31**: 637—1959

West Coast Audio Convention, February, 1959. **31**: 83—1959

0.3 Nonacoustical Theories

PAPERS

Hydrostatic balancing mechanism of *Xenopus* larvae. Willem A. van Bergeijk. **31**: 1340—1959

Method of obtaining amplitude and phase spectra of a transient function using graphical input data. Wilfred J. Remillard. **31**: 531—1959

ABSTRACTS

Method for numerical evaluation of the coefficients of Fourier series. Kurt H. Haase. **31**: 115—1959

BOOK REVIEWS

An Introduction to Fourier Methods and the Laplace Transformation. Philip Franklin. (Reviewed by R. B. Lindsay.) **31**: 641—1959

Concise Dictionary of Science. Frank Gaynor. (Reviewed by F. E. White.) **31**: 1390—1959

Tables of Modified Quotients of Bessel Functions of the First Kind for Real and Imaginary Arguments. Morio Onoe. (Reviewed by R. B. Lindsay.) **31**: 376—1959

Theory of Relativity. W. Pauli. (Reviewed by R. B. Lindsay.) **31**: 1274—1959

1. Acoustical Society of America

1.1 General, Unclassified

Excerpts from the report of the Editor-in-Chief to the Executive Council at the Ottawa meeting. **31**: 1142—1959

Report of the President of the Acoustical Society of America on the business meeting, Chicago, Illinois, November, 1958. **31**: 537—1959

Report of the Treasurer. **31**: 819—1959

1.2 Constitution and Bylaws

Proposed amendment to Bylaws. **31**: 84—1959

1.5 Meetings

Author Index to Abstracts of Chicago Meeting. **31**: 132—1959

Author Index to Abstracts of Cleveland Meeting. **31**: 1588—1959

Author Index to Abstracts of Ottawa Meeting. **31**: 855—1959

Dates of future meetings of the Acoustical Society. **31**: 84, 254, 373, 539, 639, 817, 1041, 1144, 1271, 1389, 1541, 1687—1959

Fifty-Sixth Meeting of the Society. **31**: 536—1959

Program of the Fifty-Sixth Meeting of the Acoustical Society of America, Congress Hotel, Chicago, Illinois, November 20–22, 1958. **31**: 109—1959

Program of the Fifty-Seventh Meeting of the Acoustical Society of America, Chateau Laurier, Ottawa, Ontario, Canada, May 14–16, 1959. **31**: 830—1959

Program of the Fifty-Eighth Meeting of the Acoustical Society of America, Wade Park Manor Hotel, Cleveland, Ohio, October 22–24, 1959. **31**: 1563—1959

The 57th Meeting of the Acoustical Society of America, May 14–16, 1959. **31**: 251—1959

The Spring Meeting in Ottawa. **31**: 1266—1959

1.6 Members and Membership Lists

Alfred N. Goldsmith joins board of RCA Communications, Inc. **31**: 83—1959

Beranek gives Thomas Hawksley lectures. **31**: 538—1959

Cyril M. Harris appointed Associate Editor. **31**: 252—1959

Daniel W. Martin receives Achievement Award from the IRE Professional Group on Audio. **31**: 815—1959

Death of Paul Earls Sabine. **31**: 372—1959

Erwin Meyer awarded honorary degree in Berlin. **31**: 538—1959

George Sioles named Group Leader for Transducer Research at CBS Laboratories. **31**: 815—1959

Gold Medal of the Society awarded to Edward C. Wente. **31**: 1267—1959

Haldon A. Leedy appointed to Committee to Study Scientific Activities of the Department of Commerce. **31**: 539—1959

Harry F. Olson elected a member of the National Academy of Sciences. **31**: 1142—1959

Harry F. Olson receives honorary degree. **31**: 1388—1959

Herbert A. Erf elected to the Board of Trustees of the Case Institute of Technology. **31**: 1270—1959

Ira Dyer replaces William P. Raney as Associate Editor for second half of 1959. **31**: 1143—1959

Ira J. Hirsh succeeds James P. Egan as Associate Editor. **31**: 815—1959

J. Warren Horton succeeds John M. Ide as Technical Director of Navy Underwater Sound Laboratory. **31**: 1271—1959

John M. Ide joins Advanced Research Projects Agency in Washington. **31**: 1270—1959

Laurence Batchelder, George Kis, and Fred Kranz complete ten years of patent reviewing for JASA. **31**: 372—1959

Leo L. Beranek resigns associate editorship. **31**: 1686—1959

Mervin J. Kelly retires as President of Bell Telephone Laboratories and is elected Chairman of the Board. **31**: 372—1959

New associates and members. **31**: 84, 254, 373, 539, 639, 817, 1041, 1145, 1272, 1389, 1541, 1687—1959

New fellows of the Acoustical Society of America. **31**: 639, 816—1959

Paul B. Ostergaard joins Lewis S. Goodfriend and Associates, consulting engineers. **31**: 1388—1959

Paul Earls Sabine (1879–1958). **31**: 536—1959

Paul Sabine Memorial Fund. **31**: 638—1959

Paul S. Veneklasen becomes Associate Editor of the Journal in charge of architectural acoustics. **31**: 1686—1959

R. A. Mangiarotty joins University of Southampton acoustics research group. **31**: 373—1959

Robert B. Kleinschmidt. 1910–1959. **31**: 1270—1959

Robert B. Newman addresses Acoustics Group of the Physical Society of London. **31**: 1271—1959

Robert T. Beyer appointed Chairman of the Fifty-Ninth Meeting of the Acoustical Society of America. **31**: 1687—1959

Sustaining members. **31**: (lists precede first page of text in each issue)—1959

Vern O. Knudsen appointed Chancellor of the University of California at Los Angeles. **31**: 1540—1959

Wallace Waterfall elected Vice Chairman of Acoustical Standards Board. **31**: 1271—1959

William John Thaler and Project Tepee. **31**: 1540—1959

William S. Cramer joins Editorial Board. **31**: 1539—1959

ERRATA

New fellows of the Acoustical Society of America. **31**: 1271—1959

1.7 Committee Activities

Excerpts from News Letter No. 2 to Acoustical Society members interested in musical acoustics. **31**: 636—1959

Report of the Committee on Audio Engineering and Electroacoustics. **31**: 371—1959

Report of the Committee on Publication Policy of the Acoustical Society of America. **31**: 251—1959

Report of the Committee on Speech Communication. **31**: 1387—1959

Report of the Committee on Underwater Acoustics. **31**: 371—1959

Report of the Technical Committee on Physical Acoustics. **31**: 1540—1959

Report of the Technical Committee on Shock and Vibration. **31**: 1268—1959

Report of the Technical Committee on Underwater Acoustics. **31**: 1269—1959

Technical committees of the Society and their chairmen. **31**: 84, 254, 373, 539, 639, 817, 1041, 1144, 1271, 1389, 1541, 1687—1959

2. Architectural Acoustics

2.1 General, Unclassified

PAPERS

On the acoustics of cocktail parties. William R. MacLean. **31**: 79—1959

ABSTRACTS

Audience and room acoustics. A. F. B. Nickson and R. W. Muncey. **31**: 1587—1959

On the noise attenuation characteristics of package mufflers for ventilating systems. Norman Doelling. **31**: 1578—1959

Pulse technique applied to acoustical testing. Alfred C. F. Cho and Robert B. Watson. **31**: 118—1959

Speech privacy design analyzer. W. R. Farrell and B. G. Watters. **31**: 1577—1959

Study of speech privacy. W. R. Farrell and B. G. Watters. **31**: 1580—1959

2.2 Auditorium Design. (See also 7.6.)

PAPERS
Acoustoelectronic auditorium. Harry F. Olson. 31: 872—1959
ABSTRACTS
Acoustics of the Sidney Myer Music Bowl, Melbourne, Australia. R. W. Muncey and A. F. B. Nickson. 31: 1587—1959
Acoustic treatment of the Cleveland Public Auditorium. J. L. Hunter and H. R. Mull. 31: 1588—1959
Orchestra enclosure for the Henry and Edsel Ford Auditorium in Detroit, Michigan. F. Russell Johnson, Leo L. Beranek, and David L. Klepper. 31: 1588—1959
Orchestra enclosure for the Tanglewood Music Shed. F. R. Johnson, L. L. Beranek, R. B. Newman, R. H. Bolt, and D. L. Klepper. 31: 1587—1959
Procedure in auditorium design. Benjamin Olney. 31: 122—1959
Reverberation time characteristics of Severance Hall. Helmut J. Ormestad, Robert S. Shankland, and Arthur H. Benade. 31: 1588—1959
Sidney Myer Music Bowl, Melbourne, Australia. R. B. Newman, F. R. Johnson, and W. J. Cavanaugh. 31: 1587—1959
Sound-absorbing treatment for large auditoriums. William J. Cavanaugh. 31: 122—1959

2.3 Studies of Existing Auditoria and Acoustic Enclosures

PAPERS
Acoustical problems in two round churches. E. E. Mikeska and R. N. Lane. 31: 857—1959
Acoustics of Severence Hall. Robert S. Shankland and Edward A. Flynn. 31: 866—1959
Acoustics of the Fredric R. Mann Concert Hall, Tel Aviv, Israel. Leo L. Beranek. 31: 882—1959
First Presbyterian Church, Stamford, Connecticut. David L. Klepper. 31: 879—1959
ABSTRACTS
Acoustical design of the First Presbyterian Church, Stamford, Connecticut. David Klepper. 31: 121—1959
Acoustical performance of the Stratford (Ontario) Festival Theatre. R. H. Tanner. 31: 839—1959
Acoustical problems in two round churches. E. E. Mikeska and R. N. Lane. 31: 121—1959
Acoustics of Severance Hall. R. S. Shankland. 31: 121—1959
Acoustic treatment and sound system for coliseum, Corpus Christi, Texas. R. N. Lane. 31: 121—1959
Acoustoelectronic auditorium. Harry F. Olson. 31: 121—1959
Measurement of acoustic definition in several large auditoria. C. D. Anderson and J. L. Collins. 31: 118—1959
Rockefeller Institute for Medical Research Auditorium. William R. Farrell. 31: 121—1959
Sounds in the rounds. Jack B. C. Purcell. 31: 120—1959

2.4 Sound Absorption, Theory and Methods of Measurement of. (See also 2.5.)

PAPERS
Absorption of sound by a strip of absorptive material in a diffuse sound field. T. D. Northwood, M. T. Grisaru, and M. A. Medcof. 31: 595—1959
Pulse technique applied to acoustical testing. Alfred C. F. Cho and Robert B. Watson. 31: 1322—1959
LETTERS TO THE EDITOR
Dependence of sound absorption coefficient upon area of acoustic materials. Kozi Sato and Masaru Koyasu. 31: 628—1959
ERRATA
Absorption of sound by a strip of absorptive material in a diffuse sound field. T. D. Northwood, M. T. Grisaru, and M. A. Medcof. 31: 1141—1959

2.5 Materials for Sound Absorption. Values of Absorption Coefficients and Acoustic Impedances

PAPERS
Absorption of sound by a strip of absorptive material in a diffuse sound field. T. D. Northwood, M. T. Grisaru, and M. A. Medcof. 31: 595—1959
ABSTRACTS
High-temperature acoustical properties of materials. William E. Lawrie. 31: 851—1959
Optimized absorption of sound by a flexible, porous medium. William W. Lang. 31: 851—1959
Problems presented in the use of acoustical plasters. Dariel Fitzroy. 31: 118—1959
Sound absorption by free-hanging resistive sheets. Richard H. Bolt. 31: 851—1959
SUBTITLES
Absorption coefficient of a standard sample at 2000 cps *vs* empty chamber absorption. G. C. Balachandran. 31: 1321—1959
PATENTS
Acoustical control apparatus. Oliver C. Eckel. 31: 822—1959
Acoustical tile and method of manufacturing it. Henry W. Heine. 31: 1391—1959
Acoustic tile. Paul K. Heerwagen. 31: 258—1959
Light-permeable sound-absorbing panel. Reuben Allen Benjamin. 31: 822—1959
Means for acoustical correction and noise absorption. Wilfrid Paul Heath. 31: 1057—1959
Sound-absorbing panels. Miguel C. Junger. 31: 1057—1959
Sound-absorbing wall panels. William L. Hartsfield. 31: 258—1959
Sound-damping climatizing systems. Hans Andorfer. 31: 542—1959
BOOK REVIEWS
Sound Absorption Coefficients. Acoustical Materials Association, publisher. (Reviewed by L. L. Beranek.) 31; 640—1959
ERRATA
Absorption of sound by a strip of absorptive material in a diffuse sound field. T. D. Northwood, M. T. Grisaru, and M. A. Medcof. 31: 1141—1959

2.7 Reverberation and Echoes. (See also 2.3, 2.4, 2.8, 2.9, and 2.10.)

PAPERS
Direct measurement of the acoustic ratio. W. Richard Stroh. 31: 234—1959
Measurement of sound diffusion in reverberation chambers. Manfred R. Schroeder. 31: 1407—1959
Random sound field in reverberation chambers. C. G. Balachandran. 31: 1319—1959
Reverberation formula which seems to be more accurate with nonuniform distribution of absorption. Dariel Fitzroy. 31: 893—1959
Sabine reverberation equation and sound power calculations. Robert W. Young. 31: 912—1959
LETTERS TO THE EDITOR
On naming reverberation equations. Robert W. Young. 31: 1681—1959
ABSTRACTS
On the determination of sound power in semireverberant spaces. Francis M. Wiener. 31: 851—1959
Random sound field in reverberation chambers. C. G. Balachandran. 31: 851—1959
Reverberation formula which seems to be more accurate with nonuniform distribution of absorption, with field examples of its application. Dariel Fitzroy. 31: 118—1959
SUBTITLES
Area effect and reverberation room measurements. T. D. Northwood, M. T. Grisaru, and M. A. Medcof. 31: 599—1959
Measured values of the acoustic ratio Q on the loudspeaker principal axis in four rooms. W. Richard Stroh. 31: 237—1959

2.8 Reverberation Measuring Instruments. (See also 2.7 and 5.15.)

SUBTITLES

Apparatus for measuring the acoustic ratio. W. Richard Stroh. **31**: 235—1959

2.9 Sound Transmission, Theory and Methods of Measurement of. (See also 2.10.)

PAPERS

American standard recommended practice for laboratory measurement of air-borne sound transmission loss of building floors and walls. K. U. Ingard, R. Huntley, W. A. Jack, M. B. Summerfield, F. Tyzzer, and R. V. Waterhouse. **31**: 76—1959

Transmission loss of some masonry walls. B. G. Watters. **31**: 898—1959

ABSTRACTS

Effect of painting on transmission loss of lightweight concrete partitions. Hale J. Sabine, Ralph Huntley, and Roy L. Richards. **31**: 1577—1959

Effect of partitions on the noise propagation in offices. Howard C. Hardy. **31**: 118—1959

Measured noise transmission characteristics of lightweight partitions used in recently constructed music buildings. R. N. Lane and E. E. Mikeska. **31**: 1577—1959

Sound transmission through suspended acoustical ceilings over part-height partitions. R. N. Hamme. **31**: 118(T)—1959

Theory of sound transmission through suspended ceilings over partitions. T. Mariner. **31**: 1577—1959

PATENTS

Means for determining the effectiveness of sound-reducing means. Donald Y. Milne. **31**: 1553—1959

2.10 Sound Insulating Structures. Values of Transmission Coefficients

PAPERS

New wall design for high transmission loss or high damping. G. Kurtze and B. G. Watters. **31**: 739—1959

ABSTRACTS

Consistency of repeated laboratory measurements of sound transmission loss. Ralph Huntley. **31**: 834—1959

Explanations from theory for differences between laboratory and field T. L. data. Leo L. Beranek. **31**: 834—1959

Field testing for sound transmission. Howard C. Hardy. **31**: 834—1959

Importance of sound insulation in residential architecture. Leslie L. Doelle. **31**: 833—1959

Interpreting laboratory sound transmission loss data for design use. George L. Bonvallet. **31**: 834—1959

Lightweight walls having high transmission loss. Gunther Kurtze, W. Ranger Farrell, Bill G. Watters, and Parker W. Hirtle. **31**: 833—1959

Sound attenuating gaps. Paul S. Veneklasen. **31**: 833—1959

Sound transmission characteristics of a layered wall construction. G. Kurtze and B. G. Watters. **31**: 833—1959

Transmission loss of single, solid walls. B. G. Watters. **31**: 118—1959

SUBTITLES

Approximate noise reduction of outside noise provided by a typical one-family frame house. Karl D. Kryter. **31**: 1416—1959

PATENTS

Construction for dampening engine noise. John J. Meyers. **31**: 1057—1959

2.13 Anechoic Chamber Design. Wedges

ABSTRACTS

Anechoic chamber of the National Research Council of Canada. N. Olson, G. J. Thiessen, E. A. G. Shaw, and T. F. W. Embleton. **31**: 852—1959

NEWS

Goodyear Aircraft Corporation acoustic test chamber. **31**: 1040—1959

3. Books, Bibliographies, and Surveys

3.1 Books and Book Reviews

A-C Circuit Analysis. A. Schure, editor. **31**: 541(T)—1959

Acoustics, Noise and Buildings. P. H. Parkin and H. R. Humphreys. (Reviewed by Leo L. Beranek.) **31**: 1273—1959

An Introduction to Fourier Methods and the Laplace Transformation. Philip Franklin. (Reviewed by R. B. Lindsay.) **31**: 641—1959

An Introduction to the Phonetics of American English. Charles Kenneth Thomas. (Reviewed by Morris Halle.) **31**: 86—1959

Audiology: Principles and Practice. Hayes A. Newby. (Reviewed by J. Donald Harris.) **31**: 257—1959

Basic Pulses. Irving Gottlieb. (Reviewed by Carl E. Adams.) **31**: 257—1959

Concise Dictionary of Science. Frank Gaynor. (Reviewed by F. E. White.) **31**: 1390—1959

Conductance Curve Design Manual. K. A. Pullen, Jr. (Reviewed by Edward T. Kornhauser.) **31**: 87—1959

Dynamical Analogies. Harry F. Olson. (Reviewed by P. LeCorbeiller.) **31**: 821—1959

Fluid Dynamics and Heat Transfer. J. G. Knudsen and D. L. Katz. (Reviewed by William L. Haberman.) **31**: 376—1959

Fundamentals of Transistors. Leonard Krugman. (Reviewed by B. B. Bauer.) **31**: 257—1959

Impedance Matching. Alexander Schure, editor. (Reviewed by Edward T. Kornhauser.) **31**: 86—1959

Industrial Noise Manual. American Industrial Hygiene Association, publisher. (Reviewed by Lewis S. Goodfriend.) **31**: 541—1959

International Conference of Ultrasonics in Medicine. Williams and Wilkins, publisher. (Reviewed by W. L. Nyborg.) **31**: 85—1959

Introduction to Symbolic Logic and Its Applications. Rudolf Carnap. (Reviewed by R. B. Lindsay.) **31**: 640—1959

Introduction to the Theory of Sound Transmission. C. B. Officer. (Reviewed by R. B. Lindsay.) **31**: 1273—1959

Listening in the Dark. Donald R. Griffin. (Reviewed by Mark R. Rosenzweig.) **31**: 375—1959

Man's World of Sound. John R. Pierce and Edward E. David, Jr. (Reviewed by A. William Mills.) **31**: 256—1959

Materials and Processes of Electron Devices. Max Knoll. (Reviewed by Carl E. Adams.) **31**: 1274—1959

Mechanical Vibration. G. W. Van Santen. (Reviewed by Horace M. Trent.) **31**: 85—1959

Microwave Transmission Design Data. Theodore Moreno. (Reviewed by Edward T. Kornhauser.) **31**: 87—1959

Perception and Communication. D. E. Broadbent. (Reviewed by Ira J. Hirsh.) **31**: 374—1959

Principles and Applications of Random Noise Theory. Julius S. Bendat. (Reviewed by R. W. Benson.) **31**: 86—1959

Proceedings of the Eighth International Congress of Linguists. Oslo University Press, publisher. (Reviewed by Kenneth N. Stevens.) **31**: 1274—1959

Progress in Crystal Physics, Vol. I, (Thermal, Elastic and Optical Properties). R. S. Krishnan. (Reviewed by Warren P. Mason.) **31**: 376—1959

Random Vibration. Stephen H. Crandall, editor. (Reviewed by Charles E. Crede.) **31**: 86—1959

Sound Absorption Coefficients. Acoustical Materials Association, publisher. (Reviewed by L. L. Beranek.) **31**: 640—1959

Sprachhörprüfmethoden. Kurt Schubert. (Reviewed by J. Donald Harris.) **31**: 256—1959

Tables of Modified Quotients of Bessel Functions of the First Kind for Real and Imaginary Arguments. Morio Onoe. (Reviewed by R. B. Lindsay.) **31**: 376—1959
Techniques of Magnetic Recording. Joel Tall. (Reviewed by Harry F. Olson.) **31**: 87—1959
The Middle Ear. Heinrich G. Kobrak. (Reviewed by Merle Lawrence.) **31**: 1042—1959
The Orchestra of the Language. Ernest M. Robson. (Reviewed by Kenneth N. Stevens.) **31**: 1042—1959
Theory of Relativity. W. Pauli. (Reviewed by R. B. Lindsay.) **31**: 1274—1959
The Practical Dictionary of Electricity and Electronics. R. L. Oldfield. (Reviewed by R. B Lindsay.) **31**: 641—1959
The Sound System of Standard Japanese. A Tentative Account from the Teaching Point of View. F. J. Daniels. (Reviewed by Osamu Fujimura.) **31**: 640—1959
The Upper Atmosphere. H. S. W. Massey and R. L. F. Boyd. (Reviewed by R. B. Lindsay.) **31**: 1274—1959
Vacuum Tube Characteristics. A. Schure, editor. (Reviewed by F. V. Hunt.) **31**: 541—1959
Zur Wirkung von Ultraschall auf die Kiemung und Entwicklung von Pflanzen und auf den Verlauf von Pflanzenkrankheiten. Karl Walters. (Reviewed by W. L. Nyborg.) **31**: 821—1959

3.2 Bibliographies

References to contemporary papers on acoustics. Walter Koidan and Earl D. Schubert. **31**: 87, 377, 641, 1043, 1275, 1542—1959

3.3 Patents

Review of acoustical patents. Robert W. Young. **31**: 99, 258, 389, 542, 655, 822, 1057, 1146, 1290, 1391, 1553, 1688—1959

3.4 Surveys, Historical and Philosophical Literature

ABSTRACTS

Acoustical research facilities at Columbia Broadcasting System Laboratories. Benjamin B. Bauer. **31**: 852—1959
On the imperfect problems of acoustics. Osman K. Mawardi. **31**: 851—1959

4. The Ear and Hearing

4.1 General, Unclassified

PAPERS

Auditory perception of submerged objects by porpoises. W. N. Kellogg. **31**: 1—1959
Development of apparatus for the analysis of sound by the sense of touch. R. W. Guelke and R. M. J. Huyssen. **31**: 799—1959
Experimental study of bone conduction in ears with mechanical impairment of the ossicles. J. P. Legouix and S. Tarab. **31**: 1453—1959
Hydrostatic balancing mechanism of *Xenopus* larvae. Willem A. van Bergeijk. **31**: 1340—1959
Intelligibility of peak-clipped speech at high noise levels. Irwin Pollack and J. M. Pickett. **31**: 14—1959
On the acoustics of cocktail parties. William R. MacLean. **31**: 79—1959
On the influence of the diffraction of sound waves around the human head on the characteristics of hearing aids. C. Wansdronk. **31**: 1609—1959
Reproduction and identification of elements of auditory displays. Irwin Pollack and Lawrence B. Johnson. **31**: 7—1959

ABSTRACTS

Analysis of the frequency characteristic of the ear below 1000 cps. J. Zwislocki. **31**: 123—1959
Analysis of the functions served by a loud auditory signal in maintaining alertness. P. Robert Knaff and Irwin Pollack. **31**: 122—1959
Area under the EEG trace as a measure of changes evoked by auditory stimuli. Peter J. Mills, Arthur J. Derbyshire, and Richard C. Carter. **31**: 122—1959
Behavioral evidence in the rat on the question of frequency modulation and amplitude modulation. Clark E. Allen. **31**: 1573—1959
Electrical model of the middle ear. J. Zwislocki. **31**: 841—1959
Experiments on the bone-conduction threshold in a free sound field. H. E. von Gierke and Charles W. Nixon. **31**: 127—1959
Follow-up report on audio analgesia. Wallace J. Gardner and J. C. R. Licklider. **31**: 850—1959
Frequency discrimination as a function of interpresentation interval. C. Douglas Creelman. **31**: 1577—1959
Frequency shifts in the EEG as indication of response to auditory stimulation. Frank J. Norkus, A. J. Derbyshire, and Peter J. Mills. **31**: 842—1959
"Oxidative" microelectrodes: a technic for measuring metabolism and permeability in cochlear scalae. G. A. Misrahy, J. F. Spradley, and A. V. Beran. **31**: 1575—1959
Phenomenal tonal memory covering retention between 64 and 3072 cps. Cyril C. O'Brien. **31**: 126—1959
Response of cochlear models to aperiodic signals. Juergen Tonndorf. **31**: 841—1959
Serendipitous effects of masking noise upon sensations produced by the dentist's drill. Wallace J. Gardner and J. C. R. Licklider. **31**: 117—1959

BOOK REVIEWS

Audiology: Principles and Practice. Hayes A. Newby. (Reviewed by J. Donald Harris.) **31**: 257—1959
Listening in the Dark. Donald R. Griffin. (Reviewed by Mark R. Rosenzweig.) **31**: 375—1959
Man's World of Sound. John R. Pierce and Edward E. David, Jr. (Reviewed by A. William Mills.) **31**: 256—1959
Perception and Communication. D. E. Broadbent. (Reviewed by Ira J. Hirsh.) **31**: 374—1959
Sprachhörprüfmethoden. Kurt Schubert. (Reviewed by J. Donald Harris.) **31**: 256—1959

4.2 Anatomy and Physiology of the Ear

PAPERS

Action of the middle ear muscles in normal cats. Robert Galambos and Allen Rupert. **31**: 349—1959
Beats in cochlear models. Juergen Tonndorf. **31**: 608—1959
Experimental study of bone conduction in ears with mechanical impairment of the ossicles. J. P. Legouix and S. Tarab. **31**: 1453—1959
Latency of action potentials in the cochlea of the guinea pig. Bruce H. Deatherage, Donald H. Eldredge, and Hallowell Davis. **31**: 479—1959
Neural funneling along the skin and between the inner and outer hair cells of the cochlea. George von Békésy. **31**: 1236—1959
Psychophysical estimate of the velocity of the traveling wave. Earl D. Schubert and Barry S. Elpern. **31**: 990—1959
Responses of the auditory cortex to repetitive acoustic stimuli. M. H. Goldstein, Jr., N. Y-S. Kiang, and R. M. Brown. **31**: 356—1959
Tonotopic organization of the cat auditory cortex for some complex stimuli. N. Y-S. Kiang and M. H. Goldstein, Jr. **31**: 786—1959

ABSTRACTS

Averages of responses evoked by tonal stimuli in the auditory cortex of the cat. T. Sandel. **31**: 842—1959
Cerebellar acoustic pathways in unanesthetized cats. G. A. Misrahy, J. F. Spradley, A. V. Beran, and V. P. Garwood. **31**: 1575—1959
Electrophysiologic responses to acoustic transients. I. Cochlear microphonics. Don C. Teas, Sidney P. Diamond, and Hallowell Davis. **31**: 1574—1959

Electrophysiologic responses to acoustic transients. II. Auditory-nerve action potentials. Sidney P. Diamond, Don C. Teas, and Hallowell Davis. **31**: 1574—1959
External spiral innervation of the cochlea. Willem A. van Bergeijk. **31**: 842—1959
Factor analysis of cochlear injuries and changes in the electrophysiological potentials following acoustic trauma in the guinea pig. Donald H. Eldredge, Walter P. Covell, Robert C. Bilger, and Hallowell Davis. **31**: 123—1959
Frequency discrimination after section of the brachium of the inferior colliculus. Jay M. Goldberg, Betty Ann Dalen, and William D. Neff. **31**: 1575—1959
Latency of action potentials in the cochlea of guinea pig. Bruce H. Deatherage, Donald H. Eldredge, and Hallowell Davis. **31**: 122—1959
Shearing motion within scala media of cochlear models. Juergen Tonndorf. **31**: 1575—1959
"Steady-state" auditory nerve potentials for different stimulus repetition rates. W. T. Peake, M. H. Goldstein, Jr., and N. Y-S. Kiang. **31**: 123—1959
Velocity of transient traveling waves on the basilar membrane. Barry S. Elpern and Earl D. Schubert. **31**: 124—1959

BOOK REVIEWS

The Middle Ear. Heinrich G. Kobrak. (Reviewed by Merle Lawrence.) **31**: 1042—1959

4.3 Binaural Hearing. Localization

PAPERS

Auditory localization of clicks. Bruce H. Deatherage and Ira J. Hirsh. **31**: 486—1959
Binaural interaction of high-frequency complex stimuli. E. E. David, Jr., Newman Guttman, and W. A. van Bergeijk. **31**: 774—1959
Binaural listening and interaural noise cross correlation. Irwin Pollack and W. J. Trittipoe. **31**: 1250—1959
Effective onset duration of auditory stimuli. Jerry V. Tobias and Earl D. Schubert. **31**: 1595—1959
Interaural noise correlations: examination of variables. Irwin Pollack and William Trittipoe. **31**: 1616—1959
Lateralization threshold as a function of stimulus duration. Jerry V. Tobias and Stanley Zerlin. **31**: 1591—1959
Listener reaction to stereophonic reproduction by reflected sound. Sidney E. Levy, George W. Sioles, Victor Brociner, and Richard W. Carlisle. **31**: 1256—1959
Pure-tone cross-ear localization effects. Willard R. Thurlow and Lloyd F. Elfner. **31**: 1606—1959
Role of interaural time and intensity differences in the lateralization of low-frequency tones. George Moushegian and Lloyd A. Jeffress. **31**: 1441—1959
Some measurements on the effects of interchannel intensity and time differences in two channel sound systems. D. M. Leakey. **31**: 977—1959

LETTERS TO THE EDITOR

Binaural communication systems: preliminary examination. Irwin Pollack. **31**: 81—1959
On the mechanism of binaural fusion. Colin Cherry and B. McA. Sayers. **31**: 535—1959
Stereophonic-binarual compromise system. Harry B. Miller. **31**: 630—1959

ABSTRACTS

Binaural interaction of impulsive stimuli and pure tones. Gerard G. Harris. **31**: 1584—1959
Binaural listening and interaural noise correlation. William Trittipoe and Irwin Pollack. **31**: 127—1959
Clues to sound localization. R. L. Hanson. **31**: 1584—1959
Effective duration of the onset-transient cue to auditory localization. Jerry V. Tobias and Earl D. Schubert. **31**: 830—1959
Effect of interaural phase on the binaural absolute threshold for tone. K. Jerome Diercks and Lloyd A. Jeffress. **31**: 1584—1959
Effect of prior monaural click on time between critically fused binaural clicks. Lawrence S. Frishkopf and Newman Guttman. **31**: 1584—1959
Evaluation of a stereophonic loudspeaker by multiple microphone arrays. Richard W. Carlisle and Arnold Schwartz. **31**: 830—1959
Interaural time disparity threshold as a function of interaural correlation. Stanley Zerlin. **31**: 127—1959
Just noticeable differences for changes of interaural time differences as a function of interaural time differences. Richard A. Campbell. **31**: 123—1959
Listener reaction to stereophonic reproduction by reflected sound. George W. Sioles and Richard W. Carlisle. **31**: 129—1959
Localization of low-frequency tones. George Moushegian and Lloyd A. Jeffress. **31**: 830—1959
New stereophonic projection console. Benjamin B. Bauer and George W. Sioles. **31**: 830—1959
Psychoacoustic study of the mechanism of binaural fusion. J. L. Hall. **31**: 1584—1959
Sound localization. R. L. Hanson. **31**: 830—1959
Temporal sampling parameters of interaural correlation. Irwin Pollack. **31**: 1583—1959
Thresholds for interaural difference in intensity. A. W. Mills. **31**: 830—1959

NEWS

British conference on stereophonic sound. **31**: 1387—1959

4.4 Deafness. (See also 5.5.)

PAPERS

On the influence of the diffraction of sound waves around the human head on the characteristics of hearing aids. C. Wansdronk. **31**: 1609—1959

ABSTRACTS

Auditory acuity and speech communications. Karl D. Kryter, Carl Williams, and David Green. **31**: 1585—1959
Comparisons of hearing loss in general population groups and in industrial groups. Anne Summerfield, James Nixon, and Aram Glorig. **31**: 124—1959
Intelligibility of natural and distorted speech led through ten hearing aids to normal and to deafened individuals. Patricia A. Kelsey. **31**: 1585—1959
Permanent deafness after continuous and spaced exposures to noise. James D. Miller and Charles S. Watson. **31**: 1574—1959
Progression of hearing loss as a function of industrial noise exposure. Aram Glorig and Anne Summerfield. **31**: 124—1959
Psychic factors in hearing loss. Jane Farley, A. J. Derbyshire, Richard L. Carter, and Peter J. Mills. **31**: 1585—1959
Speech perception through different hearing aids. I. J. Hirsh, I. Shore, and K. Charan. **31**: 1585—1959

NEWS

Deafness Research Foundation. **31**: 1387—1959
Deafness Research Foundation makes grants for basic research. **31**: 1144—1959
Institute on Occupational Hearing Loss, Colby College, Waterville, Maine. **31**: 815—1959
Third World Congress of the Deaf. **31**: 637—1959

4.4.5 Auditory Fatigue, Temporary Threshold Shift

PAPERS

Auditory adaptation in noise. H. N. Wright. **31**: 1004—1959
On some poststimulatory effects at the threshold of audibility. J. Zwislocki, E. Pirodda, and H. Rubin. **31**: 9—1959
Relation between recovery from temporary threshold shift and duration of exposure. W. Dixon Ward, Aram Glorig, and Diane L. Sklar. **31**: 600—1959

Temporary threshold shift from octave-band noise: applications to damage-risk criteria. W. Dixon Ward, Aram Glorig, and Diane L. Sklar. **31**: 522—1959
Temporary threshold shift produced by intermittent exposure to noise. W. Dixon Ward, Aram Glorig, and Diane L. Sklar. **31**: 791—1959
LETTERS TO THE EDITOR
Residual effects at longer pre-exposure durations. William J. Trittipoe. **31**: 244—1959
Susceptibility and sex. W. Dixon Ward, Aram Glorig, and Diane L. Sklar. **31**: 1138—1959
ABSTRACTS
Day-to-day stability of the auditory threshold in noise-exposed and non-noise-exposed Air Force personnel. Lennart L. Kopra. **31**: 831—1959
Effect of a loud pre-exposure tone on TTS resulting from impulse noise. John L. Fletcher and A. J. Riopelle. **31**: 831—1959
Influence of loud contralateral stimulation on the threshold for lower frequency tones. Michel Loeb and Arthur J. Riopelle. **31**: 831—1959
Minimum audible field of the cat. James D. Miller and Charles S. Watson. **31**: 1574—1959
On "latent" auditory fatigue. W. Dixon Ward. **31**: 831—1959
Residual effects of low noise levels on the temporary threshold shift. W. J. Trittipoe. **31**: 832—1959
Susceptibility and sex. W. Dixon Ward, Aram Glorig, and Diane L. Sklar. **31**: 831—1959
Temporary and persistent threshold shifts for the cat. J. D. Miller, C. S. Watson, C. D. Anderson, and W. P. Covell. **31**: 1574—1959
Temporary threshold shifts from tones and noise bands of equivalent rms sound pressure level. Paul O. Thompson and Robert S. Gales. **31**: 1579—1959
4.5 Instruments Relating to Hearing, and for the Testing of Hearing. (See also 5.5.)
LETTERS TO THE EDITOR
Effect of earphone cushion on auditory threshold. James F. Jerger and Tom W. Tillman. **31**: 1264—1959
ABSTRACTS
Dynamics of bone receiver instruments. E. Weiss. **31**: 841—1959
SUBTITLES
Ossicular chain fixed by a rigid wedge. J. P. Legouix and S. Tarab. **31**: 1454—1959
PATENTS
Audiometer. Ralph E. Allison. **31**: 99—1959
Automatically recording pitch matching equipment. John C. Webster. **31**: 822—1959
Bone conduction hearing-aid clamps. Alonzo L. Smith. **31**: 390—1959
Bone conduction receiver mounting for combined hearing aid and spectacles. George Lewis. **31**: 655—1959
Combined spectacles and hearing aid with automatic self-seating earphone. Arthur Godfrey Carlson. **31**: 1058—1959
Complex noise generator. Ralph E. Allison. **31**: 390—1959
Ear mounted hearing aid device. Frank B. Wallace. **31**: 1058—1959
Eyeglass hearing aid construction. Sam Posen. **31**: 1290, 1553—1959
Hearing aid. Roger E. Erickson. **31**: 1290—1959
Hearing aid. Frederic C. Smith. **31**: 1290—1959
Hearing aid device. Nathan P. Nichols. **31**: 1553—1959
Hearing aid having directional reception characteristics. Eugene J. Toomey. **31**: 1554—1959
Hearing-aid receiver. David E. Wiegand and James E. Ancell. **31**: 390—1959
Hearing aids. Gilbert E. Gustafson and John T. Valaskovic. **31**: 390—1959
4.6 Loudness, Threshold Determinations
PAPERS
Age and sex differences in pure-tone thresholds. John F. Corso. **31**: 498—1959
Critical bands and the loudness of complex sounds near threshold. Bertram Scharf. **31**: 365—1959
Effect of background noise on the auditory intensive difference limen. Carl E. Sherrick, Jr. **31**: 239—1959
Experiments on the bone-conduction threshold in a free sound field. C. W. Nixon and H. E. von Gierke. **31**: 1121—1959
Intensive differential thresholds for octave-band noise. Arnold M. Small, Jr., W. Edward Bacon, and James L. Fozard. **31**: 508—1959
Loudness of complex sounds as a function of the number of components. Bertram Scharf. **31**: 783—1959
On the lambda loudness function, masking, and the loudness of multicomponent tones. W. R. Garner. **31**: 602—1959
On the validity of the loudness scale. S. S. Stevens. **31**: 995—1959
Relation between hearing threshold and duration for tone pulses. R. Plomp and M. A. Bouman. **31**: 749—1959
Relation between loudness and duration of tonal pulses. I. Response of normal ears to pure tones longer than click-pitch threshold. F. Miskolczy-Fodor. **31**: 1128—1959
LETTERS TO THE EDITOR
Effect of earphone cushion on auditory threshold. James F. Jerger and Tom W. Tillman. **31**: 1264—1959
Masked thresholds for octave band noise. James L. Fozard, W. Edward Bacon, and Arnold M. Small, Jr., **31**: 1681—1959
Susceptibility and sex. W. Dixon Ward, Aram Glorig, and Diane L. Sklar. **31**: 1138—1959
ABSTRACTS
Day-to-day stability of the auditory threshold in noise-exposed and non-noise-exposed Air Force personnel. Lennart L. Kopra. **31**: 831—1959
Effect of memory for amplitude on amplitude discrimination. Wilson P. Tanner, Jr. **31**: 1575—1959
Effects of noise plus an O_2-CO_2 gas on the human auditory threshold. Walter Spieth. **31**: 124—1959
Intensive differential thresholds for octave band noise. Arnold M. Small, Jr., W. Edward Bacon, and James L. Fozard. **31**: 128—1959
Loudness judgments on clicks. C. D. Geisler, C. M. Molnar, W. T. Peake, T. F. Weiss, and T. T. Sandel. **31**: 128—1959
Relation between the compensatory and pursuit modes of display in auditory tracking of loudness. Andrew G. Pikler and J. Donald Harris. **31**: 1579—1959
Susceptibility and sex. W. Dixon Ward, Aram Glorig, and Diane L. Sklar. **31**: 831—1959
NEWS
Lowering of auditory threshold. **31**: 254—1959
4.7 Masking. (See also 5.5.)
PAPERS
Additivity of different types of masking. Robert C. Bilger. **31**: 1107—1959
Backward masking. J. M. Pickett. **31**: 1613—1959
Masking by tones vs noise bands. Richard H. Ehmer. **31**: 1253—1959
Masking patterns of tones. Richard H. Ehmer. **31**: 1115—1959
Pure-tone masking. Arnold M. Small, Jr. **31**: 1619—1959
Residual masking at low frequencies. Cyril M. Harris. **31**: 1110—1959
LETTERS TO THE EDITOR
Masked thresholds for octave band noise. James L. Fozard, W. Edward Bacon, and Arnold M. Small. Jr. **31**: 1681—1959
Masking: Why restrict it to the threshold level? Max F. Meyer. **31**: 243—1959

ABSTRACTS
Backward masking by an intense burst of noise. J. M. Pickett. 31: 127—1959
Binaural masking of noise by noise. Jerry V. Tobias and Jack F. Curtis. 31: 127—1959
Masking of tones by noise for the cat. Charles S. Watson. 31: 1574—1959
Pure tone masking. Arnold M. Small, Jr. 31: 836—1959
SUBTITLES
Calculation of masking. W. R. Garner. 31: 607—1959

4.8 Phase Effects. (See also 4.3.)
ABSTRACTS
Effect of phase on the quality of a two-component, unsymmetrical, complex tone. James H. Craig and Lloyd A. Jeffress. 31: 1584—1959
New results concerning monaural phase sensitivity. Manfred R. Schroeder. 31: 1579—1959

4.9 Pitch
PAPERS
Reproduction and identification of elements of auditory displays. Irwin Pollack and Lawrence B. Johnson. 31: 7—1959
ABSTRACTS
A new pitch scale. J. Donald Harris. 31: 1565—1959
Further assessment of the effects of intensity upon the pitch of pure tones. Alexander Cohen and John F. Corso. 31: 1565—1959
Pitch and tonal masking. Richard H. Ehmer. 31: 1566—1959
Pitch discrimination of complex sounds. E. E. David, Jr., and G. R. Schodder. 31: 1565—1959
Pitch of periodic pulses. James L. Flanagan and Newman Guttman. 31: 123—1959
Pitch of periodic pulses without fundamental component. James L. Flanagan and Newman Guttman. 31: 836—1959
Pitch shifts with pure tone masking. Arnold M. Small, Jr. 31: 1566—1959
Some experiments on frequency recognition. Wilson P. Tanner, Jr. 31: 127—1959

4.10 Subjective Tones
PAPERS
Beats in cochlear models. Juergen Tonndorf. 31: 608—1959
LETTERS TO THE EDITOR
"Difference tones": a false term endlessly perpetuated. Max F. Meyer. 31: 1030—1959
ABSTRACTS
Beats in cochlear models. Juergen Tonndorf. 31: 124—1959

4.11 Theories of Hearing
PAPERS
Development of apparatus for the analysis of sound by the sense of touch. R. W. Guelke and R. M. J. Huyssen. 31: 799—1959
Neural funneling along the skin and between the inner and outer hair cells of the cochlea. Georg von Békésy. 31: 1236—1959
Psychophysical estimate of the velocity of the traveling wave. Earl D. Schubert and Barry S. Elpern. 31: 990—1959
Synchronism of neural discharges and their demultiplication in pitch perception on the skin and in hearing. Georg von Békésy. 31: 338—1959
ABSTRACTS
Electrical model of the middle ear. J. Zwislocki. 31: 841—1959
Mechanisms of frequency response extension. C. Douglas Creelman. 31: 126—1959
Mechanistic aspects of hearing. Edith L. R. Corliss. 31: 841—1959
Multidimensional scaling approach to the determination of basic psychological parameters for pure tones. Robert W. Peters. 31: 1578—1959
Response of cochlear models to aperiodic signals. Juergen Tonndorf. 31: 841—1959

4.13 Ear Acoustical Impedance
ABSTRACTS
Measurement of the acoustical impedance of the guinea pig's ear. J. R. Mundie, H. E. von Gierke, and W. R. Rebbin. 31: 841—1959

4.14 Ear Protectors, Earplugs
ABSTRACTS
Attenuation of spherical helmets. V. J. Raelson, M. D. Burkhard, and R. W. Benson. 31: 129—1959
How much ear protection? L. Weinreb and M. L. Touger 31: 129—1959
Limits of ear protection. Paul S. Veneklasen. 31: 841—1959
PATENTS
Device for protecting ears from noise. Robert R. Hornickel and Herbert R. Barnett. 31: 1290—1959
Ear inserts. Carl A. Nielson, Theodore J. Bushey, and Ranson L. Currens. 31: 1554—1959
Earphone barrier device. Milton Morse. 31: 390—1959
Ear plug. Paul L. Michael, Joseph Borsh, and John P. Strange. 31: 1058—1959
Noise attenuating device. Herman P. Roth. 31: 822—1959
Noise protective device. Harry W. Austin, Robert R. Hornickel, and Don E. Sietam. 31: 390—1959
Sound attenuator helmet. Walter S. Finken and Jackson A. Aileo. 31: 1689—1959
NEWS
Stromberg-Carlson conducts analysis of ear defenders. 31: 1040—1959

4.15 Perception of Signals. Detection of Signals in Noise
PAPERS
Auditory perception of temporal order. Ira J. Hirsh. 31: 759—1959
Continuity effects with alternately sounding tones. Willard R. Thurlow and Lloyd F. Elfner. 31: 1337—1959
Correlation of a finite distance point source. Melvin J. Jacobson. 31: 448—1959
Detection of a pulsed sinusoid in noise as a function of frequency. David M. Green, Mary J. McKey, and J. C. R. Licklider. 31: 1446—1959
Development of apparatus for the analysis of sound by the sense of touch. R. W. Guelke and R. M. J. Huyssen. 31: 799—1959
Discrimination of number of simultaneously sounding tones. Willard R. Thurlow and Irving L. Rawlings. 31: 1332—1959
Effective onset duration of auditory stimuli. Jerry V. Tobias and Earl D. Schubert. 31: 1595—1959
Effect of background noise on the auditory intensive difference limen. Carl E. Sherrick, Jr. 31: 239—1959
Effect of brief loud noise on decision making. Muriel M. Woodhead. 31: 1329—1959
Identification of elementary auditory displays and the method of recognition memory. Irwin Pollack. 31: 1126—1959
Indices of signal detectability obtained with various psychophysical procedures. John A. Swets. 31: 511—1959
Interaural noise correlations: examination of variables. Irwin Pollack and William Trittipoe. 31: 1616—1959
Multiple observations of signals in noise. John A. Swets, Elizabeth F. Shipley, Molly J. McKey, and David M. Green. 31: 514—1959
Multiple observers, message reception, and rating scales. Louis R. Decker and Irwin Pollack. 31: 1327—1959
On the detection of signals in nonstationary noise by product arrays. John B. Thomas and Thomas R. Williams. 31: 453—1959
Operating characteristics determined by binary decisions and by ratings. James P. Egan, Arthur I. Schulman, and Gordon Z. Greenberg. 31: 768—1959

Search for physical correlates to psychological dimensions of sounds. Lawrence N. Solomon. **31**: 492—1959
Use of pressure gradient receivers in a correlator receiving system. Melvin J. Jacobson and Robert J. Talham. **31**: 1352—1959

LETTERS TO THE EDITOR
Auditory perception of temporal order. Donald E. Broadbent and Peter Ladefoged. **31**: 1539—1959
Cocktail party acoustics. Howard C. Hardy. **31**: 535—1959
Graphical presentation of data in the framework of the theory of signal detectability. Wilson P. Tanner, Jr. **31**: 243—1959
On indices of signal and response discriminability. Irwin Pollack. **31**: 1031—1959
Two types of ROC curves and definitions of parameters. F. R. Clarke, T. G. Birdsall, and W. P. Tanner, Jr. **31**: 629—1959

ABSTRACTS
Analysis of sequential decisions. David M. Green and John A. Swets. **31**: 834—1959
A physiologist views the theory of signal detectability. M. H. Goldstein, Jr. **31**: 119(T)—1959
Auditory vigilance by experienced listeners to a 1 kc pip in white noise. C. Robert Pettie. **31**: 1579—1959
Aural detection of a gated sinusoid as a function of its duration. J. C. R. Licklider and G. H. Flanagan. **31**: 835—1959
Comparison of the receiver operating characteristic for messages received by ear and by eye. Edward C. Carterette and Michael Cole. **31**: 126—1959
Concept of ideal observers. T. G. Birdsall. **31**: 119(T)—1959
Cueing as a determiner of apparent variability in sensitivity. Elizabeth F. Shipley. **31**: 834—1959
Detectability of small irregularities in a broad-band noise spectrum. Charles I. Malme and Kenneth N. Stevens. **31**: 129—1959
Detection of a pulsed auditory signal in noise as a function of duration and frequency. David M. Green. **31**: 836—1959
Detection of a pulsed sinusoid of uncertain frequency. David M. Green. **31**: 1580—1959
Detection of complex wave forms: effects of signal band width and duration. C. Douglas Creelman. **31**: 836—1959
Detection of gated sinusoids in white noise as a function of frequency. David M. Green, Mary J. McKey, and J. C. R. Licklider. **31**: 126—1959
Detection of signals presented at random times. James P. Egan, Gordon Z. Greenberg, and Arthur I. Schulman. **31**: 1579—1959
Fundamental notions of detectability. Julian H. Bigelow. **31**: 119(T)—1959
Individual differences and inconclusive experiments in psychophysics. Wilson P. Tanner. Jr. **31**: 835—1959
On signal detection, signal perception, and ideal observers. M. V. Mathews and E. E. David, Jr. **31**: 834—1959
Operating characteristics determined by binary decisions and by ratings. James P. Egan, Arthur I. Schulman, and Gordon Z. Greenberg. **31**: 835—1959
Perception of damped sine waves. Rene Capraro and Morris Halle. **31**: 126—1959
Proportion of correct responses as a function of the number of stimulus-response alternatives. Frank R. Clarke. **31**: 835—1959
Stimulus and response theories of signal uncertainty. John A. Swets and Susan A. Sewall. **31**: 835—1959
Theory of signal detectability in audition. J. C. R. Licklider. **31**: 119(T)—1959
Theory of signal detectability in speech communication research. James P. Egan. **31**: 119(T)—1959

SUBTITLES
Theory of signal detectability. Irwin Pollack. **31**: 1506—1959

BOOK REVIEWS
Introduction to Symbolic Logic and Its Applications. Rudolf Carnap. (Reviewed by R. B. Lindsay.) **31**: 640—1959

5. Applied Acoustics, Instruments and Apparatus. ***(See also 2.8, 4.5, 9.6, 10.3, 12.3, 12.3p, 12.3Z, 13.11, 13.11n, and 13.11t.)***

5.1 General, Unclassified

PAPERS
Hot wire method for visualizing intense stationary sound waves. R. M. Fand and J. Kaye. **31**: 810—1959
Intracardiac acoustics. John D. Wallace, James R. Brown, Jr., David H. Lewis, George W. Deitz, III, and Ali Ertugrul. **31**: 712—1959

LETTERS TO THE EDITOR
Calibration of two transducers assumed identical. R. J. Urick. **31**: 251—1959

ABSTRACTS
Acoustical research facilities at Columbia Broadcasting System Laboratories. Benjamin B. Bauer. **31**: 852—1959
Acoustic instrumentation for measurements in the Minuteman silo. G. W. Kamperman and D. N. Keast. **31**: 1571—1959
Digital array phasing. Victor C. Anderson. **31**: 1571—1959
Fabric acoustimeter. Paul S. Veneklasen and Finn Jourgensen. **31**: 842—1959
New graphic level recorder for acoustic measurements. M. J. Fitzmorris, Jr., J. J. Faran, Jr., and M. W. Basch. **31**: 843—1959
On the imperfect problems of acoustics. Osman K. Mawardi. **31**: 851—1959
10-millisecond mechanical audio-frequency delay line. George H. Ashley. **31**: 843—1959

PATENTS
Adjustable sound level control for audible signals of the vibratory type. Roscoe D. Bean. **31**: 1689—1959
Audible toothbrush. Jack J. Levin. **31**: 1146—1959
Auscultation and percussion sounding instrument. Carlo Cinquini. **31**: 823—1959
Burglar alarm. Frank J. La Cavera. **31**: 822—1959
Child's exercise, amusement, and education device. Curtis W. Suter. **31**: 542—1959
Dictation device. Leo Orso. **31**: 655—1959
Driver dozer alarm. Horace A. James. **31**: 542—1959
Filler pipe with sound signal. William R. Haynes. **31**: 258—1959
Horn circuit. Cleafe A. Best, Jr., and Weichien Chow. **31**: 823—1959
Mechanism for operating a signaling device. Charles E. Graham Reeves. **31**: 1291—1959
Siren construction. Martin J. Bird. **31**: 1689—1959
Sonic gas analyzers. Albert E. Martin and Donald Mounfield. **31**: 1689—1959
Sonic vehicle counter. Benjamin Cooper and Arthur Stern. **31**: 1689—1959
Sonic wave generator. Rinaldo E. DeCola, Reuben C. Carlson, and Alf F. Adel. **31**: 1689—1959
Toy locomotive sound effects. William R. Smith. **31**: 1291—1959
Toy whistle attachment. John H. Ball. **31**: 542—1959
Vibration damping means for pressure sensitive devices. Charles Fenoglio. **31**: 1058—1959

BOOK REVIEWS
A-C Circuit Analysis. A. Schure, editor. **31**: 541(T)—1959
Basic Pulses. Irving Gottlieb. (Reviewed by Carl E. Adams.) **31**: 257—1959

Impedance Matching. Alexander Schure, editor. (Reviewed by Edward T. Kornhauser.) **31**: 86—1959
Materials and Processes of Electron Devices. Max Knoll. (Reviewed by Carl E. Adams.) **31**: 1274—1959
The Practical Dictionary of Electricity and Electronics. R. L. Oldfield. (Reviewed by R. B. Lindsay.) **31**: 641—1959
Vacuum Tube Characteristics. A. Schure, editor. (Reviewed by F. V. Hunt.) **31**: 541—1959

NEWS
Fourth Midwest Symposium on Circuit Theory. **31**: 637—1959
Possible use of acoustical means of the production and detection of gravitational waves. **31**: 1040—1959
Use of high energy sound in thrust control system for missiles. **31**: 1389—1959

5.2 Amplifiers and Attenuators

PATENTS
Audio-frequency amplifier. Richard E. Werner. **31**: 1689—1959
Automatic volume regulator. Cornelis Bevoort and Raimond Edouard Marie Baudet. **31**: 1058—1959
Electromagnetic attenuator. Elmer E. Reynolds. **31**: 1146—1959
Logarithmic converter circuit. Milton Green. **31**: 1058—1959
Method of improving intelligence under random noise interference. Lawrence J. Fogel. **31**: 1058—1959

BOOK REVIEWS
Fundamentals of Transistors. Leonard Krugman. (Reviewed by B. B. Bauer.) **31**: 257—1959

5.4 Analyzers and Filters, Acoustic and Electric. Oscillographs. (See also 5.15 and 12.3f.)

ABSTRACTS
Acoustic filters for liquid piping systems. E. E. Mikeska, E. L. Hixson, and J. V. Kahlbau. **31**: 1578—1959
Optimum fine resolution spectrum analyzer. Reinhold Vogel and Robert I. Bernstein. **31**: 1571—1959

PATENTS
Electromechanical filter elements. Oskar E. Mattiat. **31**: 1691—1959
Electromechanical reed system. Albert L. Cavalieri, Jr., and Robert W. Roop, **31**: 1690—1959
Filter. Bernard Niederman. **31**: 1059—1959
Magnetostriction devices. Umberto F. Gianola and Robert L. Wallace, Jr. **31**: 1690—1959
Piezoelectric crystal filter. T. L. Leming and Louis A. Dick. **31**: 1691—1959
Tuning apparatus. Ralph W. George. **31**: 1690—1959
Ultra-low pass filter. Kenneth W. Pfleger. **31**: 1690—1959

5.5.1 Broadcasting

PATENTS
Prompting device. Douglas E. Spears. **31**: 1146—1959
Stereophonic transmission system. Alexandre Dauguet. **31**: 1691—1959

5.7 Frequency Standards, Frequency Measuring and Recording Instruments

PATENTS
Electrically maintained vibratory oscillator. Cecil Frank Clifford. **31**: 823—1959
Electronic oscillator for producing frequencies of musical tones. Serge L. Krauss. **31**: 259—1959

5.8 Loudspeakers, Horns. (See also 5.13, 5.17, and 5.18.)

PAPERS
Evaluation of a modulated air-flow l[illegible]peaker. John C. Webster, Roy G. Klumpp, and Al[illegible] L. Witchey. **31**: 795—1959
Evaluation of a stereophonic loudspeaker by multiple microphone arrays. Richard W. Carlisle and Arnold Schwartz. **31**: 1348—1959
Method of improving acoustic transmission in folded horns. Richard W. Carlisle. **31**: 1135—1959

LETTERS TO THE EDITOR
Acoustic interaction in vented loudspeaker enclosures. E. de Boer. **31**: 246—1959

ABSTRACTS
Analysis of flared acoustic matching sections. J. E. Holte and R. F. Lambert. **31**: 116—1959
Electronically modulated air valve. Walter T. Fiala and John K. Hilliard. **31**: 1570—1959
Evaluation of a modulated air-flow loudspeaker. J. C. Webster and R. G. Klumpp. **31**: 129—1959
Evaluation of a stereophonic loudspeaker by multiple microphone arrays. Richard W. Carlisle and Arnold Schwartz. **31**: 830—1959
Improved directional distribution from horn arrays. Paul S. Veneklasen. **31**: 842—1959
New stereophonic projection console. Benjamin B. Bauer and George W. Sioles. **31**: 830—1959
Theory of isophonic speaker systems. B. B. Bauer. **31**: 128(T)—1959

PATENTS
Acoustical device. Van R. Potter. **31**: 1554—1959
Acoustic baffle. James Peter Young. **31**: 390—1959
Acoustic tone equalizer. Randolph P. Mercurius. **31**: 1392—1959
Audio modulating and control device. Anthony J. Mosack. **31**: 1146—1959
Compound diffraction horn. Louis S. Hoodwin. **31**: 259—1959
Concussion protection for loudspeakers. Arthur W. Page. **31**: 1147—1959
Condenser loudspeaker. Gerhard Buchmann and Roland Karolus. **31**: 1392—1959
Convertible loudspeaker system. William L. Hartsfield. **31**: 391—1959
Device for use in reproducing sounds. Roy F. Allison, Alan C. Macy, and Marsh B. Giddings, Jr. **31**: 1147—1959
Diffused-tone cabinet. Daniel W. Martin. **31**: 100—1959
Diffused-tone cabinet for organs. Daniel W. Martin. **31**: 99—1959
Electropneumatic loudspeaker. Horace N. Rowe and George H. Eash. **31**: 99—1959
Enclosures for sound reproduction. Robert L. Sewell. **31**: 100—1959
Extension loudspeaker. Gerard Gellman. **31**: 1555—1959
High-fidelity amplifying apparatus. Stanley H. Michael. **31**: 391—1959
High-fidelity sound reproducing apparatus. Fritz E. Goettner. **31**: 100—1959
High-fidelity sound system. Edward S. Miller. **31**: 1148—1959
High-fidelity speaker enclosure combination. Frank H. Stephens, Jr. **31**: 1147—1959
Horn for loudspeaker. Courtney Q. Glassey. **31**: 1391—1959
Infinite baffle comprising a spherical shell of foamed plastic. Leonard Bonn. **31**: 1554—1959
Loudspeaker. Herbert W. Sullivan. **31**: 99—1959
Loudspeaker arrangement. Curt Wylezik. **31**: 1554—1959
Loudspeaker cabinets. Edward James Jordan. **31**: 1554—1959
Loudspeaker circuitry. Sidney E. Levy. **31**: 1148—1959
Loudspeaker diaphragm supporting member. Charles L. Matthews. **31**: 391—1959
Loudspeaker enclosure. Oliver Read. **31**: 100—1959
Loudspeaker enclosure. Edgar H. Simpson. **31**: 1147—1959
Loudspeaker mounted in front panel of open-back cabinet. Takakuni Shimizu. **31**: 99—1959
Loudspeakers. Donald Maynard Chave. **31**: 101—1959
Loudspeaker system. Harold S. Burns and Paul A. de Mars. **31**: 1691—1959

Low-frequency loudspeaker. Philip J. Brownscombe. **31**: 101—1959
Method of reproducing speech and music by means of loudspeakers. Derk Kleis. **31**: 1148—1959
Moving coil type loudspeakers. John George Carter. **31**: 1146—1959
Neck-forming device for making acoustic diaphragms. Colin Kyle. **31**: 100—1959
Pleural drive loudspeaker. Sidney E. Levy. **31**: 1391—1959
Protective cone assembly for loudspeakers. Ilo M. Brown. **31**: 1148—1959
Radio speaker assembly. Manlius C. Mossington. **31**: 100—1959
Rear seat speaker. Bernard G. Radin. **31**: 101—1959
Ribbon-type magnetic armature transducer. Ross M. Carrell. **31**: 1554—1959
Sound producing device. Edward G. Thurston. **31**: 259—1959
Sound-propagating device. Robert J. Beecroft and Edward N. Fenton. **31**: 1391—1959
Sound reproducer. Ambrose Burke. **31**: 1555—1959
Sound reproducing apparatus. John Victor Corney. **31**: 100—1959
Sound reproducing apparatus. Walter W. Rudd and James E. Benson. **31**: 101—1959
Sound sources for microphone calibration. Albert L. Witchey. **31**: 100—1959
Speaker acoustic box. Clarence B. Galyon and Ralph E. Galyon. **31**: 100—1959
Speaker assembly. James D. Hoffman. **31**: 1392—1959
Speaker cabinet. Rene Delort. **31**: 391—1959
Transducer assembly. Philip N. Lehr. **31**: 1555—1959
Transducers. Lloyd J. Bobb. **31**: 1555—1959
Transducers. Lloyd J. Bobb and Charles A. Perry. **31**: 1147—1959
Transducer with fluid-filled diaphragm suspension. Harry F. Olson and John Preston. **31**: 391—1959
Vibrato producing loudspeaker. Edward D. Teikowski. **31**: 1148—1959

5.9 Microphones. Microphone Calibration Equipment and Techniques. (See also 5.18, 12.3p, and 13.11t.)

PAPERS

Design of directional arrays. John L. Brown, Jr., and Richard O. Rowlands. **31**: 1638—1959
Detecting sound fields. C. Bordone Sacerdote. **31**: 133—1959
Noise-reducing line microphone for frequencies below 1 cps. Fred B. Daniels. **31**: 529—1959

LETTERS TO THE EDITOR

Reply to "Calibration of two transducers assumed identical." Arthur F. Niemoeller. **31**: 814—1959

ABSTRACTS

Headset microphone for communication in noise fields of 135 db and higher. E. R. Ware, R. M. Carrell, and M. L. Touger. **31**: 128—1959
Measuring the free field correction for a new condenser microphone. Per V. Bruel, Gunnar Rasmussen, Alan Morris, and Jack Mowry. **31**: 1570—1959
Noise-reducing line microphone for frequencies below 1 cps. Fred B. Daniels. **31**: 128—1959
Pressure reciprocity calibration of condenser transducers to 50 kc in air. Floyd O. Hickmon, III. **31**: 1570—1959
Stability of Bruel and Kjaer type 4131 condenser microphones. T. F. W. Embleton and I. R. Dagg. **31**: 1570—1959
Stability of Western Electric microphones. T. F. W. Embleton and I. R. Dagg. **31**: 852—1959

PATENTS

Directional microphone. John C. Bleazey. **31**: 391—1959
Directional microphone system. Friedrich Spandöck and Erwin Gillitzer. **31**: 102—1959
Electrical pressure detecting device. Charles M. Wolfe. **31**: 260—1959
Electrodynamic receiving apparatus. Günther Wurdel. **31**: 101—1959
Microphone assembly. Charles D. Jenkins, Jr., and Harry A. Greene, Jr. **31**: 823—1959
Microphone converter. Monea E. Hawley. **31**: 391—1959
Microphone support. Walter S. Finken. **31**: 1059—1959
Piezoresistive acoustic transducer. Fred P. Burns. **31**: 1059—1959
Portable radio transmitter with combination microphone horn and antenna. Adolph R. Morgan. **31**: 392—1959
Pressure responsive transducers. Austin N. Stanton. **31**: 259—1959
Silent dictation mask. Henry A. Sherwood. **31**: 1149—1959
Soundproof mask for hand microphone. Horace L. Webb. **31**: 392—1959
Testing apparatus. Harry Sussman. **31**: 102—1959

5.10 Navigational Instruments Using Air Sound. Altitude Measuring Instruments. Sound Ranging (for Underwater Ranging see 13.11n)

PATENTS

Acoustic impedance logging. Frank N. Tullos. **31**: 1392—1959
Acoustic well logging with end shielding. William C. Overton, Jr. **31**: 1394—1959
Determination of propagation characteristics of earth formations. Oswald Alfonso Itria. **31**: 1392—1959
Electrical control system for magnetic recorder. James M. Cunningham. **31**: 655—1959
Elimination of near surface reflection effects. Milton B. Dobrin. **31**: 1394—1959
Flash-to-sound recording system. Fred B. Daniels. **31**: 392—1959
Geophones. William Melancthon Jones. **31**: 260—1959
Method and apparatus for amplifying seismic signals. Robert E. Doe, Robert E. Daniel, and Graham C. Alvey. **31**: 1393—1959
Method and apparatus for determining the travel times of a signal propagated over a plurality of paths. William E. N. Doty and Milford R. Lee. **31**: 1393—1959
Method and apparatus for seismic exploration. Burton McCollum. **31**: 260—1959
Method for compensating seismic detector signals for intersignal time variations. Francis G. Blake and Aubra E. Tilley. **31**: 260—1959
Method of subsurface exploration by sonic means. Louis R. Padberg, Jr. **31**: 1392—1959
Mud decoupler. Gardner D. Currie. **31**: 1392—1959
Noise-sensitive control of acoustic well logging systems. Gerald C. Summers. **31**: 542—1959
Offshore seismic prospecting. William C. Knudsen. **31**: 1394—1959
Petroleum well treatment by high power acoustic waves to fracture the producing formation. Albert G. Bodine, Jr. **31**: 1393—1959
Receiving seismic waves directionally. Neil R. Sparks. **31**: 260—1959
Recording of seismic data and recorder operating conditions. Robert A. Manhart and Aubra E. Tilley. **31**: 260—1959
Reflection seismic exploration method. Hugh O. Walker, Jr. **31**: 1555—1959
Seismic exploration. Raymond G. Piety. **31**: 1555—1959
Seismic exploration methods, systems and apparatus. Burton McCollum. **31**: 260—1959
Seismic prospecting utilizing trace integration. Aubra E. Tilley. **31**: 1394—1959
Seismic reflection prospecting technique. Alfred Wolf. **31**: 1393—1959
Seismic section printer. Jesse D. Skelton and Henry B. Ferguson. **31**: 1393—1959

Seismic surveying with shear waves. Moses B. Widess and Karl Dyk. **31**: 1394—1959
Seismic wave analysis. James E. White and Philip L. Lawrence. **31**: 543—1959
Seismic wavelet contraction. Richard J. Runge. **31**: 1393—1959
System and apparatus for analysis of seismographic records. J. A. Hall, Jr. **31**: 1392—1959
Vibration recording device. Vining T. Reynolds. **31**: 1393—1959
Well-logging methods and apparatus. Edward V. Hardway, Jr. **31**: 1555—1959

5.13 Public Address Systems and Sound Picture Installations

PAPERS

Acoustoelectronic auditorium. Harry F. Olson. **31**: 872—1959

ABSTRACTS

Improvement of acoustic feedback stability in public address systems. M. R. Schroeder. **31**: 851—1959

PATENTS

Announcing method and apparatus. Paulette Barthe. **31**: 392—1959
Combination musical instrument case and public address system. Rundlette K. Palmer. **31**: 261—1959
Personalized sound. Priscilla Dodge Gardner. **31**: 1555—1959
Portable lectern. Harry A. Pronio. **31**: 1059—1959
Power megaphone. Frederick L. Hardesty. **31**: 261—1959
Public address system. Angus W. Blow. **31**: 261—1959
Public address system for subway trains. Frederick B. Woodworth and Ellsworth H. Hults. **31**: 261—1959
Selective control and relative volumes indicator for voice and/or music amplifiers. James C. Hilton. **31**: 261—1959
Stereophonic apparatus. Klaus Bertram. **31**: 543—1959
Unitary self-contained entertainment system and lectern. Frederick L. Kohler. **31**: 261—1959

5.14 Rayleigh Disks. Radiometers

PAPERS

Measurements of acoustic radiation force. K. Budal, E. Höy, and H. Olsen. **31**: 1536—1959

5.15 Sound Level Meters. Level Recorders. Sound Pressure Measurement. (See also 5.4.)

ABSTRACTS

New portable sound and vibration analyzer. James J. Faran, Jr. **31**: 843—1959

PATENTS

Acoustic wattmeter. Theodore J. Schultz. **31**: 392—1959
Blast gauge. Anthony W. Orlacchio. **31**: 1691—1959
Sound-level meter attenuator system. Ralph E. Allison. **31**: 823—1959

5.16 Sound Recording and Reproducing. General

LETTERS TO THE EDITOR

Sound recording and "publication" of acoustical research. W. H. George. **31**: 1030—1959

PATENTS

Automatic rerecording system. Carl N. Shipman. **31**: 655—1959
Combined apparatus for the reproduction of sound and simultaneous projection of pictures. Karl Daniel. **31**: 392—1959
Combined sound film and television apparatus. Hans Friess. **31**: 392—1959
Control device for audio reproducing systems including a crossover network. Norman R. Thresher and Ernest H. Fidellow. **31**: 823—1959
Dictation-recording system. William W. Logan. **31**: 262—1959
Dictation system. Frederick W. Roberts, Roger C. Curtis, Lloyd R. Jones, and Rudolf E. Freund. **31**: 261—1959
Record actuated sound system. Skipworth W. Athey, Louis L. Pourciau, and David B. Shaw. **31**: 543—1959
Remotely controlled dictation recording systems. Richard Kobler. **31**: 655—1959
Signal transfer selector. Eugene Leonard. **31**: 823—1959
Sound and slide picture coordination system. Warren D. Novak. **31**: 262—1959
Sound editing device. David Eigen. **31**: 1395—1959
Sound reproducing device. Jean Louis Roulet. **31**: 1149—1959
Sound reproducing system. Stuart D. Noble. **31**: 823—1959
Sound reproduction apparatus. Richard H. MacCutcheon. **31**: 823—1959
Wireless control for recording sound for stereophonic reproduction. Willis Robert Dresser. **31**: 1059—1959

5.16d Disk Recording (including cutting and embossing)

PAPERS

Analysis of a piezoelectric phonograph transducer as a function of the clamping position. D. H. Howling. **31**: 620—1959
Surface and groove noise in disk recording media. I. D. H. Howling. **31**: 1463—1959
Surface and groove noise in disk recording media. II. D. H. Howling. **31**: 1626—1959

PATENTS

Adapter for phonograph spindles. Erik Wennerbo and Gösta Hedberg. **31**: 1395—1959
Apparatus for pseudostereophonic sound reproduction. George A. Morrell, Jr. **31**: 262—1959
Apparatus for recording orchestral sound. Hans Friess. **31**: 1692—1959
Attachment for tone arm control in automatic record players. Haim Murro. **31**: 1397—1959
Automatic interlocking dual phonograph record player with selective control. Herman H. Mueller. **31**: 262—1959
Automatic phonograph. Fred H. Osborne. **31**: 1693—1959
Automatic sound reproducing device. Allen H. Kent. **31**: 1695—1959
Automatic variable pitch control apparatus for disk recorders. Arthur G. Evans. **31**: 1692—1959
Automatic volume level control for phonographs. John H. Riggs. **31**: 1692—1959
Binaural phonograph pickup. Earl M. Reiback. **31**: 1060—1959
Capacity-type transducer. Ephraim W. Hogue. **31**: 656—1959
Continuous multiple record player. Lloyd J. Andres. **31**: 656—1959
Controlled oscillator systems. Paul Weathers. **31**: 1060—1959
Device for recording sound oscillations in spiral grooves on a plate-shaped carrier. Jan Boontje and Henk Lauterslager. **31**: 543—1959
Dictation apparatus. Ferdinand Zecha and Fritz Lampe. **31**: 1059—1959
Dictation system. Douglas E. Taylor and Lloyd R. Jones. **31**: 543—1959
Disk record cutting means. Charles Pearson, Jr. **31**: 1060—1959
Dual needle phonograph pickup. Herman C. Lalesse. **31**: 1060—1959
Dual pickup cartridge assembly for phonograph tone arms. George Arthur Morrell, Jr., Belford C. Angle, and Maurice M. Palo. **31**: 1694—1959
Electromechanical transducer. John F. Wood. **31**: 263—1959
Gramophone pickup heads. David Theodore Nelson Williamson. **31**: 1694—1959
Gramophone pickups. Maurice J. Keohane. **31**: 1060—1959
High sensitive transducers with electromechanical feedback. Hans E. Hollmann. **31**: 543—1959

Magnetic tape processor. Samuel Lubkin and Edmund D. Schreiner. **31**: 1059—1959
Means for centering gramophone records. Marcel Jules Helene Staar. **31**: 656—1959
Method and article for causing record players to repeat. Stephen R. Goldenberg. **31**: 1396—1959
Moving armature phonograph pickups. John H. McConnell. **31**: 1291—1959
Multispeed phonograph drive. Otto Babler. **31**: 1695—1959
Multispeed turntable drive. Eric Wennerbo. **31**: 1693—1959
Phonograph cartridge. John F. Wood. **31**: 263—1959
Phonograph pickup. Dallas R. Andrews. **31**: 1060—1959
Phonograph pickup. Benjamin B. Bauer, Lee Gunter, Jr., Charles E. Seeler. **31**: 1696—1959
Phonograph pickup. Mordy M. Rhodes and Chester K. Puda. **31**: 656—1959
Phonograph pickups. Norman H. Dieter, Jr., and Ignatius Michalko. **31**: 263—1959
Phonograph pickups. Harry F. Klingener. **31**: 262—1959
Phonograph pickups. Ignatius Michalko and Frank A. Faillace. **31**: 1291—1959
Phonograph pickups. Robert Smith-Johannsen. **31**: 1291—1959
Phonograph record. Donald L. Richter. **31**: 656—1959
Phonograph record and reproducing apparatus. Peter C. Goldmark. **31**: 1694—1959
Phonograph record player. Norbert Karl Acker. **31**: 1695—1959
Phonograph record player speed selector. Lawrence A. Pranter. **31**: 1396—1959
Phonograph repeat mechanism. Theodore R. Duncan. **31**: 1396—1959
Phonograph tone arm. Daniel P. Doncaster. **31**: 1060—1959
Pickup for phonographs. Harry da Costa. **31**: 1395—1959
Piezoelectric pickups. Roy Ernest Poulton. **31**: 1693—1959
Playback sound reproducer. George L. Bard. **31**: 1695—1959
Pocket speaking devices. Jean Jauquet. **31**: 1694—1959
Record and method of making same. James W. Bayless. **31**: 656—1959
Record-changing device. Paul Scheller, Walter Oldenburg, and Joseph Cimiotti. **31**: 1692—1959
Record-playing apparatus. Robert Neil Dolphin. **31**: 1693—1959
Remotely controlled dictation recording system. Martin J. Kutik. **31**: 656—1959
Rumble eliminator. Cosler Donald Knight. **31**: 1692—1959
Sound reproducer. William S. Bachman. **31**; 1694—1959
Sound-reproducing apparatus using disk records. Lawrence V. Guest. **31**: 262—1959
Telephone answering and recording devices. John J. Shively. **31**: 262—1959
Tone arm and control means therefor. Erik Wennerbo. **31**: 1396—1959
Tone arm control. Barton A. Proctor. **31**: 1396—1959
Tone arm control for the fully automatic or manually controlled playing of intermixed records. H. H. Mueller. **31**: 1556—1959
Tone arm for sound reproduction. Joseph D. Marks. **31**: 1059—1959
Tone arm structure for sound equipment. Henry A. Sherwood. **31**: 1395—1959
Transducer of mechanical vibrations into electrical oscillations. Charles Boubet and André L. M. Dupuis. **31**: 1397—1959
Transducers. Stanley Kelly. **31**: 656—1959
Transistor amplifier circuit. Hung Chang Lin. **31**: 1059, 1691—1959
Transistor signal translating circuit. Gerald E. Theriault. **31**: 263—1959
Transmitting devices for sound reproducers. Franz Geissl. **31**: 1395—1959
Universal phonograph pickup cartridge. Maurice M. Palo. **31**: 1693—1959
Universal phonograph pickup head or the like. Ira J. Kaar. **31**: 1694—1959
Variable speed phonograph drive mechanisms. Herbert L. Hartman. **31**: 1695—1959
Wide range dynamic phonograph pickup. Harry F. Olson and John Preston. **31**: 543—1959

5.16f Film Recording (by photographic means)

ABSTRACTS

Synthesis of sound on film. Norman MacLaren. **31**: 839—1959

PATENTS

Apparatus for reproducing sound. Delmar H. Brown. **31**: 263—1959
Binaural system. Kenneth R. Hamann. **31**: 102—1959
Direct positive sound recording system. James L. Pettus. **31**: 1291—1959
Film recorder. Richard F. H. Hill. **31**: 1149—1959
Means for editing sound recordings. Glen R. Glenn. **31**: 656—1959
Motion picture projector changing-over system for magnetic and optical scanning. Rudolf Kuhnert. **31**: 1397—1959
Sound film recording system. John H. Jacobs. **31**: 1149—1959

5.16m Magnetic Recording

ABSTRACTS

Tape-recorder for creative use in an electronic music studio. Hugh Le Caine and John M. Bowsher. **31**: 839—1959

PATENTS

Adjustable magnetic transducer mount. Chris A. Christoff. **31**: 1150—1959
Announcing machines. John L. Franklin. **31**: 1061—1959
Annular magnet head of the kind comprising a solid core for magnetic recording and reproduction. Willem Klaas Westmijze. **31**: 1557—1959
Apparatus for and method of recording. James P. Fay. **31**: 103—1959
Apparatus for magnetically recording on a carrier of magnetic material. Jan Jacobus Went and Willem Klaas Westmijze. **31**: 544—1959
Apparatus for magnetic recording of sound on record cards. Chester M. MacChesney. **31**: 396—1959
Apparatus for making duplicate magnetic records. Marvin Camras. **31**: 103—1959
Apparatus for manifesting intelligence on record media. William R. Maclay and George W. Scott. **31**: 1151—1959
Arrangement for scanning and reproducing magnetic fields. Simon Duinker and Willem Klaas Westmijze. **31**: 1557—1959
Combination recording head. Joseph W. Gratian. **31**: 396—1959
Constant wavelength control tone system. Arthur Blaney. **31**: 1292—1959
Demagnetization system. Bruce R. Greiner. **31**: 393—1959
Dictating machine. Thomas L. Dinsmore. **31**: 105—1959
Driving mechanism for head of sound recording and reproducing apparatus. Eudore Desire Brasseur. **31**: 656—1959
Electromagnetic head. David E. Wiegand. **31**: 544—1959
Electromagnetic head structure. Wesley V. Patterson. **31**: 1152—1959
Electromagnetic transducer. Jay M. Hansen. **31**: 397—1959
Endless-belt recorder apparatus. Ralph Textrom. **31**: 1291—1959
Equalization of aperture effect. Gordon Raisbeck. **31**: 1151—1959
Eraser for magnetically recorded bulk tape in roll form. William H. Lyon and Lincoln Thompson. **31**: 393—1959
Erasing head for magnetic recording. Donald L. Clark. **31**: 392—1959

Film editing machine. Ralph J. Avseev (now Ralph J. Ives). 31: 1397—1959
Flywheel for recording and reproducing invisible images on a magnetic surface. André Clément Coutant and Jacques Mathot. 31: 393—1959
Folded belt record machine. Edward S. Gillette and Ralph H. Sherman, Jr., 31: 1556—1959
Head drum assembly for magnetic tape. William H. Lyon. 31: 397—1959
Head mount. Russell B. Wallace and Melnor C. Rudser. 31: 1061—1959
High-frequency bias supply for multichannel magnetic sound system. Harry M. Crain. 31: 394—1959
High-frequency recording. Miles P. Rehorn. 31: 824—1959
High-frequency tape recorder. Lacy L. Dawkins. 31: 393—1959
Hybrid balancing network for a magnetic recorder. Desmond Sydney Ridler and Donald Gordon Neal Hunter. 31: 1150—1959
Integral transformer electromagnetic transducer. David F. Brower and Raymond Howard Griest. 31: 106—1959
Long playing tape recording apparatus. William H. Lyon. 31: 395—1959
Magnetic head. Jacques de Ramey. 31: 396—1959
Magnetic head. William A. Farrand, Lester L. Kilpatrick, and Spencer G. Johnston. 31: 395—1959
Magnet head. Heinz Thiele. 31: 397—1959
Magnetic head for sound-recording apparatus and the like. Karl Georg Schwarz and Hans-Christoph Wohlrab. 31: 104—1959
Magnetic heads and replaceable pole cap assemblies therefor. Michael Rettinger. 31: 1061—1959
Magnetic modulator head for narrow track records. David E. Wiegand. 31: 545—1959
Magnetic playback system. David E. Wiegand. 31: 396—1959
Magnetic record duplicating device for producing magnetic records. Marvin Camras. 31: 1062—1959
Magnetic recorder. Marvin Camras. 31: 824—1959
Magnetic recorder. Hillel I. Reiskind. 31: 1149—1959
Magnetic recorder drive mechanism. Marvin Camras. 31: 395—1959
Magnetic recorder sound unit. Marvin Camras. 31: 394—1959
Magnetic recording. Adolph R. Morgan. 31: 544—1959
Magnetic recording. Gary Muffly. 31: 394—1959
Magnetic recording and reproducing apparatus. John J. Hoehn and Fielding B. Hills. 31: 394—1959
Magnetic recording and reproducing apparatus. Chester M. MacChesney. 31: 395—1959
Magnetic recording device. Arthur Edward Brewster. 31: 1556—1959
Magnetic recording device. Theodor H. Mann and Theodore G. Mann. 31: 106—1959
Magnetic recording device. Roelof Vermeulen. 31: 1556—1959
Magnetic recording head. Joseph W. Gratian. 31: 1151—1959
Magnetic recording playback circuits. John E. DeTurk. 31: 103—1959
Magnetic recording system. Frederick G. Buhrendorf. 31: 102—1959
Magnetic recording transducer. Henry E. Roys and Dallas R. Andrews. 31: 396—1959
Magnetic record method and apparatus. Charles S. Reis. 31: 1292—1959
Magnetic record testing means. Donald K. Reynolds. 31: 103—1959
Magnetic reproducing systems. Kenzo Nagai and Saburo Uemura. 31: 1557—1959
Magnetic reproduction system. David E. Wiegand. 31: 393—1959
Magnetic sound recording. Wallace V. Wolfe. 31: 102—1959
Magnetic sound recording and reproducing apparatus. Horst Redlich. 31: 544—1959
Magnetic sound recording head. Friedrich Bergmann. 31: 103—1959
Magnetic tape apparatus. Rene J. Gaubert. 31: 105—1959
Magnetic tape apparatus. Walter T. Selsted. 31: 105—1959
Magnetic tape playback speed control system. Charles B. Pear, Jr. 31: 393—1959
Magnetic tape recorder. Colin B. Dale, Paul K. Bridenbaugh, and Raymond C. Bierman. 31: 1292—1959
Magnetic tape reel assembly. Walter T. Selsted. 31: 1062—1959
Magnetic tape transducer mechanism. Jerry B. Minter, 2nd. 31: 103—1959
Magnetic tape transport mechanism. Jonathan Hunter. 31: 1556—1959
Magnetic transducer. David F. Brower. 31: 1150—1959
Magnetic transducer. Edward A. Quade. 31: 397—1959
Magnetic transducer head. Otto Kornei. 31: 1292—1959
Magnetic transducer head. David E. Wiegand. 31: 397—1959
Magnetic transducer head and method of making same. Otto Kornei. 31: 104—1959
Magnetic transducing assembly. Marvin Camras. 31: 106—1959
Magnetic transducing head with mounting and adjustment means. Lawrence H. Gernert. 31: 1061—1959
Magnetic volume control system. Dorothy L. Blaney. 31: 103—1959
Magnetized record signal reproduction system. Albert M. Skellett. 31: 106—1959
Mass demagnetizing device for magnetic recording media. John S. Boyers. 31: 657—1959
Means for erasing a magnetic record. William R. Goehner and Charles M. Taris. 31: 395—1959
Means for producing dispersion in electrical oscillations. William Halliday. 31: 106—1959
Means for recording. Marvin Camras. 31: 657—1959
Means for recording and reproducing acoustic signals. Heinz Thiele. 31: 1150—1959
Means for reproducing magnetic recordings. James H. Greenwood. 31: 394—1959
Mechanism for wire and tape recording and playing apparatus. Robert B. Rhoades. 31: 395—1959
Method and apparatus for the selective erasure of undesired transferred signals in magnetic recording. Robert Herr. 31: 1061—1959
Method of recording and reproducing wide-band signals. Wayne R. Johnson. 31: 394—1959
Miniature tape recording mechanism. Chester A. Boggs. 31: 394—1959
Motor synchronizing system for motion picture and magnetic sound tape apparatus. Edward P. Kennedy. 31: 105—1959
Multiple sound source switching system. John F. Byrd. 31: 656—1959
Nonlinear magnetic recording compensation. Marvin Camras. 31: 1152—1959
Operating device for a sound recording and reproducing apparatus. Giovanni Steinegger. 31: 824—1959
Pocket tape recorder. Colin B. Dale. 31: 1292—1959
Portable magnetic recorder. Peter Katz. 31: 1291—1959
Recording and reproducing assembly. John B. Gray. 31: 1151—1959
Recording apparatus. Ellis H. Bryant, Jr. 31: 1151—1959
Recording device for magnetic records. Jan Wijchman. 31: 824—1959

Record playback system for magnetic recording. Ralph West and Kaiju Meri. **31**: 104—1959
Rotary magnetic transducer means having yieldable heads. William H. Lyon. **31**: 398—1959
Sound effect control. Hubert J. Schlafly, Jr. **31**: 824—1959
Sound film reproducer driving system. Arthur C. Albee and James L. Pettus. **31**: 824—1959
Sound motion picture film. Marvin Camras. **31**: 1556—1959
Sound reading device for kinematographic projectors. Antoine Heurtier. **31**: 1062—1959
Sound recording and reproducing apparatus. Eudore D. Brasseur. **31**: 1062—1959
Sound recording and reproducing apparatus. Clifford A. Nickerson. **31**: 1292—1959
Sound recording and reproducing apparatus. Frederick W. Roberts. **31**: 545—1959
Sound recording and reproducing apparatus. Frederick W. Roberts, Edward S. Gillette, John A. Duntze, and Arthur W. Skoog. **31**: 1062—1959
Sound recording and reproducing apparatus. Douglas E. Taylor, Ralph H. Sherman, Jr., Arthur W. Skoog, and Joseph A. Rescsanski. **31**: 1696—1959
Sound recording and reproducing device. Giovanni Steinegger. **31**: 105—1959
Sound recording and sound reproducing apparatus. Ernst Genning, Willi Draheim, and Nikolaus Monske. **31**: 1151—1959
Sound tape operated switching mechanism. Norman Swanson. **31**: 105—1959
Sound tape winding reels. Gunter Herrmann. **31**: 1062—1959
Sound track position compensation means for record drum-lead screw type translating device. William R. Goehner. **31**: 825—1959
System of electromagnetic recording. Joseph P. Kleiber. **31**: 1061—1959
Tape guiding system. Ducan N. MacDonald. **31**: 1150—1959
Tape recorders. Colin B. Dale. **31**: 105—1959
Tape stepping device for high-speed magnetic recording. Frank Rudolph House. **31**: 104—1959
Tape transport apparatus. Robert George Groom. **31**: 545—1959
Telegraphone recording and reproducing system. Walter C. Howey. **31**: 102—1959
Transducer mounting. Robert L. Perkins. **31**: 1151—1959
Transmission for magnetic sound recording machines. Ralph A. Schuyler. **31**: 394—1959
Turntable changing mechanism for magnetic recorder. Frank E. Runge. **31**: 1150—1959
Turntable for magnetic recorder. Frank E. Runge, William H. Lyon, and Donald F. Balmer. **31**: 1061—1959
Variable area magnetic recording apparatus. Ralph B. Atkinson and Steven G. Ellis. **31**: 397—1959
Ventilated container. Richard E. Maples. **31**: 397—1959

BOOK REVIEWS

Techniques of Magnetic Recording. Joel Tall. (Reviewed by Harry F. Olson.) **31**: 87—1959

5.17 Telephones, Telephone Earphones, Intercommunication Systems. (See also 5.13.)

ABSTRACTS

Dynamics of bone receiver instruments. E. Weiss. **31**: 841—1959

PATENTS

Acoustic equipment for auditorium sound systems. Dramin Daniel Jones. **31**: 1557—1959
Amplifying devices for telephone hand sets. Charles H. Miller. **31**: 1557—1959
Audio system for drive-in theater. Harold W. Rosenberg, Jasper L. Jeung, and Hadyn L. Smith. **31**: 825—1959
Circuit arrangement for intercommunication systems. Martin G. Jaenke and Helmüt Reischl. **31**: 1696—1959
Close coupled telephone answering and message recording device. Joseph J. Zimmermann. **31**: 398—1959
Damping plate. Fredric E. Wood. **31**: 107—1959
Dynamic transducer. Gaston A. Marchand and Donald W. Powers. **31**: 657—1959
Electrical signal transmission. Walter Honolka. **31**: 1696—1959
Electric arrangement for speech transmission in two directions. Karl Flury. **31**: 398—1959
Exclusion arrangement for loudspeaking telephone systems. Harrison C. Smith. **31**: 1293—1959
Hearing device. Bernard Eichwald. **31**: 1697—1959
Intercommunication unit. Ernest Finkbeiner. **31**: 1557—1959
Ladder truck communication system. Bryce A. Hoshield and Wendell H. Doan. **31**: 263—1959
Loudspeaking telephone employing transistors. Gabriele F. Cerofolini. **31**: 1293—1959
Loudspeaking telephone systems. Roger F. Laurence. **31**: 1696—1959
Magnetic insert earphone and inserts therefor. William F. Knauert. **31**: 657—1959
Monitoring indication for communication system. Angus W. Blow and George H. Clark. **31**: 1696—1959
Passive conference circuit. Peter G. Smee and James S. S. Kerr. **31**: 1696—1959
School to home communication system. Allan C. Bernstein. **31**: 825—1959
Signaling devices. Eric E. Anderson. **31**: 263—1959
Sound distribution system. Frank H. Lehman and Philip N. Lehr. **31**: 825—1959
Sound powered phone. Alfred H. Kettler. **31**: 1697—1959
Sound recording and reproducing apparatus in conjunction with a telephone subscriber set. Willy Müller. **31**: 398—1959
Telephone. Esther A. Lilley. **31**: 1063—1959
Telephone and microphone. Gerrit Schenkel. **31**: 657—1959
Telephone equipment. Joseph J. Radomski, Allan R. Royle, and Carl M. Wenrich. **31**: 1063—1959
Telephone installation. Carl Gustaf Söderbaum. **31**: 1557—1959
Underwater speaking device. William F. Hogan and Jack D. McNeal. **31**: 263—1959

5.18 Transducing Principles, Structures, and Materials, General. (See also 5.8, 5.9, 5.17, 10.3, 12.3p, 13.7, and 13.11t.)

PAPERS

Analysis of a logarithmic solion acoustic pressure detector. A. F. Wittenborn. **31**: 475—1959
β-quartz as high-temperature piezoelectric material. Donald L. White. **31**: 311—1959
Frequency response of an acoustic air-jet generator. James C. Gravitt. **31**: 1516—1959
Piezoelectric relations and the radial deformation of a polarized spherical shell. R. A. Toupin. **31**: 315—1959
Second-order instrumentation systems with frequency-dependent stiffness and damping. Eric Rule, Fred J. Suellentrop, and Thomas A. Perls. **31**: 1457—1959
Siren design for producing controlled wave forms at high intensities. C. H. Allen and B. G. Watters. **31**: 177—1959

LETTERS TO THE EDITOR

Calibration of two transducers assumed identical. R. J. Urick. **31**: 251—1959
Reply to "Calibration of two transducers assumed identical." Arthur F. Niemoeller. **31**: 814—1959

ABSTRACTS

Application and performance of liquid jet transducers. E. C. Cottell. **31**: 119—1959

Electronic equipment and transducers for pulse measurements in the frequency range 500 cps to 10 Mc. Eugen J. Skudrzyk. **31**: 120—1959
Electrostatic transducers. T. J. Schultz. **31**: 842—1959
Evaluation of the use of swivel-mass vibrators as sonic generators. N. E. Gibbs and G. E. Miller. **31**: 120—1959

PATENTS

Devices for the production of ultra sounds. Roger Legrand. **31**: 1698—1959
Dielectrostrictive signal and energy transducers. Joseph W. Crownover and Heiman W. Koren. **31**: 1063—1959
Dielectrostrictive signal energy transducers. Heiman W. Koren and Joseph W. Crownover. **31**: 1063—1959
Electrical transducer. Gerald R. Curtis. **31**: 1558—1959
Electric pressure transducer. Joseph L. Jonke. **31**: 1558—1959
Electromagnetic pressure transducer. Phillip L. Jessen. **31**: 1558—1959
Electromechanical resonant system. Jack Kaplan and Frank T. Turner. **31**: 1697—1959
Fabricating dielectric electromechanical transducer elements. Charles K. Gravley. **31**: 1697—1959
Ferroelectric torsional transducer. Warren P. Mason. **31**: 1293—1959
Frequency controllable piezoelectric resonator. Donald H. Robey. **31**: 398—1959
Low-frequency magnetostrictive transducer. Wilbur T. Harris. **31**: 107—1959
Magnetostrictive transducer lamination. John D. Wallace. **31**: 657—1959
Mass-loaded ring vibrator. Harry Susman. **31**: 107—1959
Means for extending range of transducers. Louis D. Statham. **31**: 1397—1959
Method of adjusting the resonant frequency of a vibrating system. Norman Rudnick. **31**: 1063—1959
Piezoelectric resonator. John William Butterworth. **31**: 1293—1959
Piezoelectric transducer. Joseph W. Crownover. **31**: 264—1959
Piezoelectric transducer. Robert V. Harris. **31**: 1152—1959
Piezoelectric transducers. Howard I. Oshry and John W. Schell. **31**: 1397—1959
Pressure sensitive resistor. Louis D. Statham. **31**: 1398—1959
Pressure transducer. Gilbert N. Rosa. **31**: 1397—1959
Pressure transducer apparatus. Philip J. Donald. **31**: 1558—1959
Pressure-voltage transducing element. Albert Richter. **31**: 1558—1959
Self-excited transducer. Wilbur T. Harris. **31**: 398—1959
Supports for mechanical vibrators. Stanley R. Rich. **31**: 1697—1959
Supports for vibratory devices. Burton R. Rawding. **31**: 1063—1959
Transducer. Douglass H. Howry. **31**: 398—1959
Transducer damping. Raymond W. Tibbetts. **31**: 107—1959
Transducer leads. George C. Tibbetts. **31**: 1697—1959
Transducer sealing. George C. Tibbetts. **31**: 1697—1959
Ultrasonic transducers. Alexander Murdoch, Jr. **31**: 1152—1959
Ultrasonic zone plate focusing transducer. Lucien A. Petermann. **31**: 1697—1959

BOOK REVIEWS

Progress in Crystal Physics, Vol. I, (Thermal, Elastic and Optical Properties). R. S. Krishnan. (Reviewed by Warren P. Mason. **31**: 367—1959

5.18m Magnetic Transducers: Magnetostriction

PAPERS

Strain gauge measurement of output of magnetostrictive ultrasonic transducer—pitfalls of optical measurement. Harold Lamport and Hans H. Zinsser. **31**: 435—1959

ABSTRACTS

Intense sound output of a nickel magnetostrictive transducer. R. R. Whymark. **31**: 1570—1959
Magnetostrictive ferrites for transducer applications. L. J. Brady. **31**: 854—1959
Magnetostrictive properties of certain cobalt-nickel alloys. W. T. Harris, K. H. Farr, C. A. Clark, and E. M. Wise. **31**: 854—1959

5.18p Piezoelectric Transducer, Ferroelectrics

PAPERS

Description of the resonances of short solid barium titanate cylinders. J. S. Arnold and J. G. Martner. **31**: 217—1959
Performance of high frequency barium titanate transducers for generating ultrasonic waves in liquids. H. J. McSkimin. **31**: 1519—1959

ABSTRACTS

High efficiency transducer for transmission to air. Jack Kritz. **31**: 1570—1959
Losses and ageing in some lead zirconate titanate ceramics. Robert Gerson. **31**: 854(T)—1959
Multimode ceramic transducers. S. L. Ehrlich, N. Serotta, and K. Kleinschmidt. **31**: 854—1959
Performance of high-frequency barium titanate transducers for generating ultrasonic waves in liquids. H. J. McSkimin. **31**:854—1959

5.21 Vibration Devices. Devices for Generating or Damping Vibrations. (See also 12., 12.3, 12.3i. 12.3p, and 12.3v.)

PATENTS

Vibration absorber. David J. Munroe. **31**: 657—1959

6. Musical Instruments and Music

6.1 General, Unclassified

LETTERS TO THE EDITOR

Synchronization of music by juxtaposition on dual-channel tapes. Andrew G. Pikler. **31**: 812—1959

ABSTRACTS

Designing auditory perspective into live musical presentation. Paul S. Veneklasen. **31**: 839—1959

PATENTS

Beat rate indicator for musical instrument tunes. Albert W. Dickey. **31**: 107—1959
Music chord indicator. Thomas E. DeRosa. **31**: 1152—1959
Portable device for teaching music. Theresa Q. Ney. **31**: 264—1959

NEWS

Acoustics Group of the Physical Society of London discusses musical acoustics. **31**: 1269—1959
Distribution of peak energy in recorded music. **31**: 638—1959
Rockefeller Foundation grant establishes center of research in electronic music. **31**: 638—1959

6.2 Bells, Xylophones. Other Instruments Having Rigid Vibrators

PATENTS

Church bell ringers. Leon J. Witkowiak. **31**: 1063—1959
Hammer for percussion instruments. William D. Gladstone. **31**: 1063—1959
Musical box construction. Water O. Gorr. **31**: 1293—1959
Musical comb construction. Peter Ganine. **31**: 1153—1959
Musical toy piano with music box. Joseph F. Scott. **31**: 1203—1959
Music box construction. Rudolph W. Chaplar. **31**: 1293—1959
Music comb with cast base. Theodor R. Duncan. **31**: 1153—1959
Toy musical instrument. Clair Omar Musser. **31**: 825—1959
Toy piano having key mounted tone bars. Clair Omar Musser. **31**: 1063—1959

6.3 Brass Wind Instruments (lip vibrated)

ABSTRACTS
Effect of mutes on cornet tone quality. Jody C. Hall and Clyde E. Lockwood, Jr. **31**: 130—1959
Intonation of an alto and a tenor saxophone. Robert W. Young. **31**: 1565—1959
Studies of cup-mouthpiece tone quality. Earle L. Kent and Richard P. Lazure. **31**: 130—1959
PATENTS
Attachment for the mouthpiece of musical instruments. Harrison H. Saylor and Ivan C. Kay. **31**: 264—1959
Mute for brass wind instruments. John G. Briggs. **31**: 264—1959

6.4 Drums and Other Membranophonic Instruments
PATENTS
Double drum beating apparatus. Horace N. Haviland. **31**: 1064—1959
Multiple-tone drum. Frederick J. Troppe. **31**: 1064—1959
Orchestral and band drum with improved shell. Hobart I. Willits. **31**: 264—1959

6.5 Pipe Organs
PATENTS
Pipe organ valve action. Sebastian Gundling. **31**: 264—1959

6.6 Pianos and Other Keyboard Stringed Instruments
PAPERS
Tuning preferences for piano unison groups. Roger E. Kirk. **31**: 1644—1959
ABSTRACTS
Tuning preferences for piano unison groups. Roger E. Kirk. **31**: 1565—1959
PATENTS
Adjustable bridge for stringed musical instruments. James Vincent Daria. **31**: 265—1959
Fingering indicator for keyboard musical instruments. Webster E. Janssen and Paul F. Murdock. **31**: 1698—1959
Key action for musical instrument. Benjamin F. Miessner. **31**: 1699—1959
Piano. Herbert O. Crippen, Sr. **31**: 1699—1959
Piano attachment. Claude Goodman, Jr. **31**: 1698—1959
Piano hammer felt press. Clarence W. Tucker and Clifford W. Andersen. **31**: 264—1959
Piano-organ playing mechanism pedal. Fred W. Doerr. **31**: 1698—1959
Piano playing device. Taito Ahola. **31**: 1698—1959
Piano teaching device. William F. Johnston. **31**: 1153—1959
Pneumatic action for player piano. Dwight L. Gribble. **31**: 1699—1959
Toy pianos. Harry Zimmerman. **31**: 265—1959
Upright piano action. Charles H. Dasenbrook and Norman K. Dasenbrook. **31**: 1699—1959
Upright piano action. Wilbur W. Waters. **31**: 1698—1959
Vibrator exciting action. Benjamin F. Miessner. **31**: 1153—1959

6.7 Violin Family. Stringed Instruments Except Keyboard Type
PATENTS
Fine tuning device for stringed instruments. Otto Infeld. **31**: 1153—1959
Fingerboard for stringed musical instrument. Berdell H. Plants. **31**: 399—1959
Magnetic pickup for stringed musical instrument. Seth E. Lover. **31**: 1558—1959
Mute for a stringed instrument. Si-hon Ma. **31**: 825—1959
Pedal operated tuning control for a stringed instrument. Frank D. Juricek. **31**: 1398—1959
Single string bass viol. Thomas E. Guthrie. **31**: 825—1959
String conditioning and preserving. Harry C. Ralls, Jr. **31**: 1558—1959
Tone varying attachment for a string musical instrument. Thomas F. Searles. **31**: 1699—1959

6.8 Wood Winds
PAPERS
On woodwind instrument bores. A. H. Benade. **31**: 137—1959
ABSTRACTS
Characteristics of clarinet tones. Earle L. Kent, Jody C. Hall, and Richard P. Lazure. **31**: 129—1959
Mathematical theory of woodwind fingerholes. A. H. Benade. **31**: 1564—1959
Report on an investigation of certain flute "blow-hole" parameters. R. J. Voots and P. L. West. **31**: 1565—1959
Some factors affecting the intonation of a clarinet. R. W. Young and J. C. Webster. **31**: 839—1959
PATENTS
Clarinet. Rosario Mazzeo. **31**: 1699—1959
Fipple flute. Edward V. Powell. **31**: 1699—1959
Neck key for saxophones. Henrie Lefevre-Selmer. **31**: 658—1959
Sound emitting instrument. Richard E. Paige. **31**: 1064—1959

6.9 Electrical Musical Instruments
PAPERS
Proposed keyboard musical instrument. Melville Clark, Jr. **31**: 403—1959
ABSTRACTS
Electronic music synthesis. H. F. Olson, H. Belar, and J. Timmens. **31**: 1565—1959
Electronic production of choral tone. William C. Wayne, Jr. **31**: 839—1959
Synthesis of sound on film. Norman McLaren. **31**: 839—1959
Tape-recorder for creative use in an electronic music studio. Hugh Le Caine and John M. Bowsher. **31**: 839—1959
PATENTS
Amplifier with tremolo. Clarence L. Fender. **31**: 1154—1959
Circular scale electrical musical instrument. Laurens Hammond. **31**: 265—1959
Electrical musical instrument. Walter J. Anderson. **31**: 1700(2 patents)—1959
Electrical musical instrument. Walter J. Anderson and Howard E. Holman. **31**: 1153—1959
Electrical musical instruments. Walter J. Anderson. **31**: 1154—1959
Electrical musical instruments. John M. Hanert. **31**: 265, 1700—1959
Electrical pickup for stringed musical instrument. Theodore M. McCarty and Seth E. Lover. **31**: 1700—1959
Electronic musical instrument. Paul B. Oncley. **31**: 265—1959
Electronic tone generator. Richard E. Williams. **31**: 1154—1959
Key contact system for electronic organs. John M. Lester. **31**: 266—1959
Modulation system for electrical musical instrument. James M. Spencer. **31**: 1154—1959
Mounting arrangement for vibratory reeds. Benjamin F. Miessner. **31**: 1700—1959
Oscillator for musical instrument. Charles J. Tennes. **31**: 265—1959
Photoelectric tone generator. Richard E. Williams. **31**: 1154—1959
Reed box for electronic organ. Fred H. Osborne and Howard G. Bauer. **31**: 1700—1959
Reverberation loudspeaker assembly. Daniel W. Martin. **31**: 266—1959
Tone generators for electronic musical instruments. Benjamin F. Miessner. **31**: 265—1959
Tone intensity envelope control for electrical musical instruments. John M. Hanert. **31**: 266—1959
Tuning means for electrical musical instrument. Richard H. Peterson. **31**: 265—1959

NEWS
Plans for new electronic music laboratory at Columbia University. 31: 1388—1959

6.10 Reed Organs. Accordions, Harmonicas
PATENTS
Chromatic harmonica. Torahachi Machino. 31: 1154—1959
Double octave mechanism for accordions. Marvin D. Ekstrom. 31: 399—1959
Electrically operated musical instrument. Diego Gobbi. 31: 399—1959
Musical squeeze blocks. Mark Page. 31: 1155—1959
Music box mounts. Joseph F. Scott. 31: 266—1959
Pitch pipes. William Kratt. 31: 826—1959
Plastic pitch pipe. William Kratt. 31: 826—1959
Reed structure for musical instrument. Gabriel J. Jacomini. 31: 826—1959
Unipod accordion support. Marks Martin Oves and Edward Oves. 31: 826—1959

7. Noise

7.1 General, Unclassified
PAPERS
Scaling human reactions to the sound from aircraft. Karl D. Kryter. 31: 1415—1959
Theory of noise and vibration insulation of a system with many resonances. Eugen Skudrzyk. 31: 68—1959
ABSTRACTS
Comparison of panel sound transmission data with noise reduction measurements of an aircraft fuselage section. D. E. Bishop. 31: 116—1959
Meters for predicting the subjective response to noise. Floyd C. Anderson. 31: 1580—1959
Noise in space vehicles due to micro meteorite impact. Peter A. Franken and Eric E. Ungar. 31: 1581—1959
Noise surveys of cocktail parties. R. F. Legget and T. D. Northwood. 31: 850—1959
Riveting noise study. E. J. Kirchman. 31: 117—1959
BOOK REVIEWS
Industrial Noise Manual. American Industrial Hygiene Association, publisher. (Reviewed by Lewis S. Goodfriend.) 31: 541—1959
NEWS
New publication of the National Noise Abatement Council, Inc. 31: 1388—1959

7.2 Annoyance
ABSTRACTS
Aircraft cabin comfort studies. John J. Dreher. 31: 1580—1959
Subjective evaluation of noise from aircraft. Karl D. Kryter, Leo L. Beranek, and Laymon N. Miller. 31: 112(T)—1959
Subjective reaction to airplane noise. Warren Watson. 31: 112—1959
SUBTITLES
Airport neighbors. Ken Eldred. 31: 556—1959
Judgments of aircraft noise. Karl D. Kryter. 31: 1416—1959

7.4 City Noise
PAPERS
Acoustical factors in jet airport design. Ken Eldred. 31: 547—1959
ABSTRACTS
Acoustical factors in jet airport design. Ken Eldred. 31: 112—1959
Traffic noise problems in Germany. M. Grützmacher. 31: 849—1959

7.5 Frequency Analyses of Noise
SUBTITLES
Octave band spectra of aircraft sounds. Karl D. Kryter. 31: 1415—1959

7.6 Noise in Buildings. (See also 2.2.)
ABSTRACTS
Characteristics of typewriter noise. A. E. Sapega. 31: 849—1959
Preliminary report on noise in hospitals. Lewis S. Goodfriend and R. L. Cardinell. 31: 849—1959
BOOK REVIEWS
Acoustics, Noise and Buildings. P. H. Parkin and H. R. Humphreys. (Reviewed by Leo L. Beranek.) 31: 1273—1959

7.7 Machinery Noise. Mufflers. Noise Silencers
PAPERS
Acoustical resonances produced by combustion of a fuel-air mixture in a rectangular duct. Isidor Elias. 31: 296—1959
Attenuation and regeneration of sound in ducts and jet diffusers. Uno Ingard. 31: 1202—1959
Scaling human reactions to the sound from aircraft. Karl D. Kryter. 31: 1415—1959
Shielding flap type jet engine noise suppressor. Domenic J. Maglieri. 31: 420—1959
Statistical evaluation of near-field sound pressures generated by the exhaust of a high-performance jet engine. Edwin C. Kamps. 31: 65—1959
ABSTRACTS
Characteristics of typewriter noise. A. E. Sapega. 31: 849—1959
Exhaust muffler design for two-cycle engines. B. G. Watters, R. M. Hoover, and Peter A. Franken. 31: 117—1959
In-flight noise suppressor development report. R. M. Gibbs. 31: 111—1959
Jet noise generation and suppression. Erik Möllo-Christensen. 31: 850—1959
Method for the measurement and analysis of the near noise field of jet aircraft. G. C. Tolhurst and S. N. Morrill. 31: 850—1959
Noise control measures for the Convair jet-liners. R. J. Koenig. 31: 112—1959
On the presentation of data on fan noise. H. M. Fitzpatrick. 31: 850—1959
Pressure disturbance on the ground due to a low-flying aircraft. Richard N. Cheever and Hans L. Oestreicher. 31: 845—1959
Some characteristics of the noise produced by several contemporary Army weapons. Norman Doelling and Karl D. Kryter. 31: 850—1959
Source of noise in fans. Howard C. Hardy. 31: 850—1959
Terminal noise. Vern Callaway. 31: 112—1959
Upgrading of acceptability criteria for noise in business machine offices. T. F. W. Embleton, I. R. Dagg, and G. J. Thiessen. 31: 849—1959
PATENTS
Acoustic cap for stacks. Robert B. Jacobs and Irwin Ginsburgh. 31: 1559—1959
Air cleaner and intake silencer assembly. Joseph B. Sebok and Ralph E. Sendelbach. 31: 1293—1959
Cleaner-silencer assembly. Norman J. Amlott. 31: 1559—1959
Combination muffler and exhaust gas after-burner and method of burning exhaust gases. William Clayton. 31: 1398—1959
Dual passage muffler. George Woodbury. 31: 1294—1959
Exhaust gas muffler and oxidizer. Harry D. Barkelew. 31: 1398—1959
Exhaust gas muffler and oxidizer. James T. Barkelew. 31: 1399—1959
Exhaust installation for internal combustion engines. Hans Karl Leistritz. 31: 658—1959
Exhaust muffler. Charles E. Nelson. 31: 1559—1959
Exhaust muffler. Emanuel Rawson. 31: 1399—1959
Exhaust mufflers for internal combustion engines. Sigismond Wilman. 31: 1155—1959

Exhaust noise abatement apparatus. Martin Hirschorn. 31: 1560—1959
Exhaust silencer. Josef Speck. 31: 1156—1959
Exhaust silencer and rain trap. Leino H. Billey. 31: 1064—1959
Means for reducing gear noise. Kurt G. F. Moeller. 31: 1400—1959
Method of an apparatus for silencing the exhaust of internal combustion engines. Jasper Willsea. 31: 1399—1959
Muffler. De La Wilmore Bremer and John F. Lovejoy. 31: 1294—1959
Muffler. Edwin E. Bryant. 31: 1294—1959
Muffler. Glen R. Chapel. 31: 1064—1959
Muffler. Robert T. Doughty. 31: 1155—1959
Muffler. Stephen J. Gibel. 31: 1155—1959
Muffler. Wilfred W. Lowther. 31: 1399—1959
Muffler. Lindon D. Mason. 31: 1399—1959
Muffler having a cover and a retaining strip therefor. Walter H. Powers and Benton D. Jacokes. 31: 1400—1959
Muffler structure. Games Slayter. 31: 1559—1959
Noise reduction means for air outlet devices. Peter A. Argentieri. 31: 1398—1959
Nondirectional muffler. John C. Clark. 31: 1294—1959
Screech reduction in combustion chambers. Arthur W. Blackman, Jr., and George D. Lewis. 31: 1560—1959
Silencer. Leino H. Billey. 31: 1155—1959
Silencer. George W. Gerstung. 31: 1400—1959
Silencer for the exhaust gases of an internal combustion engine. Roland B. Bourne and John P. Tyskewicz. 31: 1295—1959
Silencer or muffler. Floyd E. Deremer. 31: 1558—1959
Sonic engine exhaust combustor. Albert G. Bodine, Jr. 31: 1064—1959
Sound muffler device for exhausts of internal combustion engines. Robert S. Coombs. 31: 1399—1959
Thrust reversing and silencing. George B. Towle, Richard L. Vasquez, and Arthur E. Wetherbee, Jr. 31: 1560—1959

7.8 Noise Generators, Sirens

PAPERS

High-intensity sound reverberation chamber and loudspeaker noise generator. W. T. Fiala and J. K. Hilliard. 31: 269—1959
Siren design for producing controlled wave forms at high intensities. C. H. Allen and B. G. Watters. 31: 177—1959
Siren design for producing controlled wave form with amplitude modulation. C. H. Allen and B. G. Watters. 31: 463—1959
Some near- and far-field noise measurements for rocket engines operating at different nozzle pressure ratios. William H. Mayes. 31: 1013—1959

ABSTRACTS

Acoustic siren for generating wide-band noise. H. E. von Gierke, John N. Cole, and Hans L. Oestreicher. 31: 116—1959
A high intensity noise facility. R. B. Tatge, R. J. Wells, and R. P. Evans. 31: 117—1959
Mechanical noise sources as calibrated noise standards. Howard C. Hardy. 31: 117—1959
New siren design. C. H. Allen and B. G. Watters. 31: 119—1959
Noise generation by interacting air jets. Uno Ingard and George C. Maling, Jr. 31: 117—1959
Simulation of airborne noise and its effect on components. Werner Fricke and R. K. Kaminski. 31: 125—1959
Siren design procedure. Clayton H. Allen and Bill G. Watters. 31: 842—1959

7.9 Noise of Animals, Biological Noise. (See also 13.9.)

PAPERS

Auditory perception of submerged objects by porpoises. W. N. Kellogg. 31: 1—1959
Intracardiac acoustics. John D. Wallace, James R. Brown, Jr., David H. Lewis, George W. Deitz, III, and Ali Ertugrul. 31: 712—1959

NEWS

Use of the audiospectrograph in the study of bird songs. 31: 84—1959

7.10 Aerodynamic Noise, Jet Noise

PAPERS

Distribution of sound sources in a jet stream. Ira Dyer. 31: 1016—1959
Effect of jet structure on noise generation by supersonic nozzles. Harold R. Mull. 31: 147—1959
Frequency response of an acoustic air-jet generator. James C. Gravitt. 31: 1516—1959
On the aerodynamic noise of a rigid flat plate moving at zero incidence. Alan Powell. 31: 1649—1959
Shielding flap type jet engine noise suppressor. Domenic J. Maglieri. 31: 420—1959

LETTERS TO THE EDITOR

Considerations concerning an upper limit to jet noise reduction. Alan Powell. 31: 1138—1959
Influence of fluid motion past a plane boundary on sound reflection, absorption, and transmission. Uno Ingard. 31: 1035—1959
New theory of jet-noise generation, directionality, and spectra. H. S. Ribner. 31: 245—1959
Noise generated by two interacting air jets. Uno Ingard and George C. Maling, Jr. 31: 1031—1959
Similarity and turbulent jet noise. Alan Powell. 31: 812—1959

ABSTRACTS

Atmospheric turbulence as a flight vehicle noise source. Peter A. Franken. 31: 1581—1959
Diffusion principles for suppressing turbojet exhaust noise. J. A. Sobel. 31: 1580—1959
Instrumentation for measurement of sonic boom. Harry H. Taniguchi. 31: 1571—1959
Method for predicting in-flight noise on jet aircraft structure. Alfred C. F. Cho. 31: 116—1959
"Near field" study of a jet-engine noise. P. A. Macpherson and D. B. Thrasher. 31: 1580—1959
Noise field of a large rocket. P. A. Franken and G. W. Kamperman. 31: 1581—1959

SUBTITLES

Effect of turbulence upon the lean screech limits. Isidor Elias. 31: 303—1959

PATENTS

Air noise eliminator attachment for vehicles. Frank D. Werner. 31: 545—1959
Noise reducing device for vehicle windows. Frank D. Werner and Bernard M. Leadon. 31: 1701—1959

8. Standards

8.1 General, Unclassified

PAPERS

American standard recommended practice for laboratory measurement of air-borne sound transmission loss of building floors and walls. K. U. Ingard, R. Huntley, W. A. Jack, M. B. Summerfield, F. Tyzzer, and R. V. Waterhouse. 31: 76—1959

NEWS

Work of the American Standards Association in acoustics, bioacoustics, vibration, and mechanical shock. 31: 83—1959

9. Speech and Singing

9.1 General, Unclassified

PAPERS

On the acoustics of cocktail parties. William R. MacLean. 31: 79—1959

BOOK REVIEWS
Man's World of Sound. John R. Pierce and Edward E. David, Jr. (Reviewed by A. William Mills.) **31**: 256—1959
Sprachhörprüfmethoden. Kurt Schubert. (Reviewed by J. Donald Harris.) **31**: 256—1959
The Orchestra of the Language. Ernest M. Robson. (Reviewed by Kenneth N. Stevens.) **31**: 1042—1959
NEWS
LOGOS—a new journal on speech disorders. **31**: 83—1959
Scandinavian fellowships available for study in speech communication. **31**: 1387—1959
9.3 Intelligibility of Speech. Articulation Testing
PAPERS
Effect of sample duration on the articulation of sounds in normal and clipped speech. Rais Ahmend and Richard Fatehchand. **31**: 1022—1959
Intelligibility of known and unknown message sets. Irwin Pollack, Herbert Rubenstein, and Louis Decker. **31**: 273—1959
Intelligibility of peak-clipped speech at high noise levels. Irwin Pollack and J. M. Pickett. **31**: 14—1959
Intelligibility of reiterated speech. Donald J. Sharf. **31**: 423—1959
Linguistic considerations in the study of speech intelligibility. Ilse Lehiste and Gordon E. Peterson. **31**: 280—1959
Low-frequency noise and methods for calculating speech intelligibility. J. M. Pickett. **31**: 1259—1959
Message repetition and message reception. Irwin Pollack. **31**: 1509—1959
Message uncertainty and message reception. Irwin Pollack. **31**: 1500—1959
LETTERS TO THE EDITOR
Binaural communication systems: preliminary examination. Irwin Pollack. **31**: 81—1959
Number of axis crossings and the intelligibility of speech. John W. Black and W. Carroll Hixson. **31**: 1384—1959
ABSTRACTS
Effects of multiple, narrow pass band filtering on the intelligibility of speech. Karl D. Kryter, Francis M. Wiener, C. M. Gogos, and Gail Flanagan. **31**: 1564—1959
Importance of frequency range in dichotic speech. Earl D. Schubert. **31**: 854—1959
Message reception and message repetition. Irwin Pollack. **31**: 853—1959
Speech intelligibility in low-frequency noise. J. M. Pickett. **31**: 853—1959
NEWS
Auditory test material development at the University of Illinois Hearing Center. **31**: 1040—1959
9.5 Sounds of Speech. Acoustic Descriptions. Combinatorial and Statistical Properties
PAPERS
Minimal rules for synthesizing speech. A. M. Liberman, Frances Ingemann, Leigh Lisker, Pierre Delattre, and F. S. Cooper. **31**: 1490—1959
Nature of the vocal cord wave. R. L. Miller. **31**: 667—1959
Vowel amplitude and phonemic stress in American English. Ilse Lehiste and Gordon E. Peterson. **31**: 428—1959
Vowel overlap as a function of fundamental frequency and dialect. Robert S. Brubaker and Morton W. Altshuler. **31**: 1362—1959
LETTERS TO THE EDITOR
Number of axis crossings and the intelligibility of speech. John W. Black and W. Carroll Hixson. **31**: 1384—1959
Peak VU deflection and energy for monosyllabic words. David M. Green, Carl Williams, and Karl D. Kryter. **31**: 1264—1959
ABSTRACTS
Analysis of vowels of laryngectomized speakers. William F. Waldrop and Arthur E. Toht. **31**: 110—1959
Choice of base signals in speech communication. Ladislav Dolansky. **31**: 114—1959
Pitch synchronous spectral analysis of vowel sounds. Joan E. Miller, M. V. Mathews, and E. E. David, Jr. **31**: 1564—1959
Preliminary investigation of certain aspects of intonation. P. Denes. **31**: 852—1959
SUBTITLES
Operation for estimating pitch. James W. Forgie and Carma D. Forgie. **31**: 1483—1959
9.6 Instruments Relating to Speech
LETTERS TO THE EDITOR
Peak VU deflection and energy for monosyllabic words. David M. Green, Carl Williams, and Karl D. Kryter. **31**: 1264—1959
ABSTRACTS
New artificial larynx. H. L. Barney, F. E. Haworth, and H. K. Dunn. **31**: 844—1959
Note on low-pass filters for retrieving sample speech signals. Henry S. McDonald. **31**: 1563—1959
SUBTITLES
Terminal-analog synthesizer and the system that controls buzz amplitude and formant frequencies. Kazuo Nakata. **31**: 663—1959
PATENTS
Data selecting and reproducing apparatus. Frank R. Eldridge, Jr. **31**: 399—1959
Noiseless device for generating audible voice frequencies including harmonics. Gilbert M. Wright. **31**: 1701—1959
Speech aid. Herbert K. Cooper. **31**: 826—1959
Transmission and reconstruction of artificial speech. Harold L. Barney. **31**: 1156—1959
9.9 Singing
NEWS
Nature of the vibrato in singing. **31**: 816—1959
9.10 Linguistics, Phonetics, Semantics. Informational Aspects
PAPERS
Semantic reactions to systematically varied sounds. Lawrence N. Solomon. **31**: 986—1959
Vowel amplitude and phonemic stress in American English. Ilse Lehiste and Gordon E. Peterson. **31**: 428—1959
Vowel overlap as a function of fundamental frequency and dialect. Robert S. Brubaker and Morton W. Altshuler. **31**: 1362—1959
LETTERS TO THE EDITOR
Relative occurrence of phonemes in American English. Jerry V. Tobias. **31**: 631—1959
ABSTRACTS
Acoustical clues to word boundaries. Ilse Lehiste. **31**: 844—1959
Diphthongs, glides, and transitions. G. E. Peterson and Ilse Lehiste. **31**: 1560—1959
Handling, visual selection, and analysis of digital data using a digital computer. H. L. Peterson. **31**: 1567—1959
Intrinsic duration of syllable nuclei in English. Ilse Lehiste and G. E. Peterson. **31**: 1569—1959
Some acoustic correlates of word stress in American English. Philip Lieberman. **31**: 844—1959
Some characteristics of stop consonants. Osamu Fujimura. **31**: 1568—1959
Vowel amplitude and phonemic stress in American English. Ilse Lehiste and Gordon E. Peterson. **31**: 110—1959
SUBTITLES
Acoustic cues for the stop and nasal consonants. A. M. Liberman, Frances Ingemann, Leigh Lisker, Pierre Delattre, and F. S. Cooper. **31**: 1493—1959
Identification of isolated synthetic nasal consonants. Kazuo Nakata. **31**: 665—1959

BOOK REVIEWS
An Introduction to the Phonetics of American English. Charles Kenneth Thomas. (Reviewed by Morris Halle.) **31**: 86—1959
Proceedings of the Eighth International Congress of Linguists. Oslo University Press, publisher. (Reviewed by Kenneth N. Stevens.) **31**: 1274—1959
The Sound System of Standard Japanese. A Tentative Account from the Teaching Point of View. F. J. Daniels. (Reviewed by Osamu Fujimura.) **31**: 640—1959
NEWS
Announcement of international meeting on phonetics in Hamburg, September, 1960. **31**: 1540—1959
9.11 Speech Perception
PAPERS
Vowel amplitude and phonemic stress in American English. Ilse Lehiste and Gordon E. Peterson. **31**: 428—1959
ABSTRACTS
Basic speech factors. Paul S. Veneklasen and Jerry Christoff. **31**: 853—1959
Combined spectral and temporal segmentation of speech. Carl M. Brandauer, Norman B. Reilly, and A. M. Liberman. **31**: 1569—1959
Comparison of the reception of heterogeneous and relatively homogeneous messages under repetition in noise. Edward C. Carterette and Michael Cole. **31**: 853—1959
Effect of duration upon vowel identification. Kenneth N. Stevens. **31**: 109—1959
Effect of learning on perception: discrimination of relative onset time of the formants in certain speech and non-speech patterns. Katherine S. Harris, A. M. Liberman, Jo Ann Kinney, and Harlan Lane. **31**: 1569—1959
Factorial study of speech perception. L. N. Solomon, J. C. Webster, and J. F. Curtis. **31**: 853—1959
Fundamental frequency and absolute vowel identification. Ronald W. Wendahl. **31**: 109—1959
Identification of filtered vowels. Gordon E. Peterson and Ilse Lehiste. **31**: 844—1959
Identification of speech sounds by means of a digital computer. George W. Hughes. **31**: 113—1959
Importance of frequency range in dichotic speech. Earl D. Schubert. **31**: 854—1959
Message reception and message repetition. Irwin Pollack. **31**: 853—1959
Message reception and message uncertainty. Irwin Pollack. **31**: 110—1959
Minimal rules for synthesizing speech. A. M. Liberman, Frances Ingemann, Leigh Lisker, and F. S. Cooper. **31**: 109—1959
Repetition and confirmation of messages received by ear and by eye. Edward C. Carterette and Michael Cole. **31**: 1569—1959
Review of current European research in speech and auditory perception. Edward E. David, Jr. **31**: 1567—1959
Silent interval as a cue for the distinction between stops and semivowels in medial position. Jarvis Bastian, Pierre Delattre, and A. M. Liberman. **31**: 1568—1959
Some acoustic correlates of velarization in Lebanese Arabic. Dean H. Obrecht. **31**: 1568—1959
Study of perception of phase alterations in speech spectra. Joan E. Miller, Max V. Mathews, and E. E. David, Jr. **31**: 109—1959
Voicing cues: perception of stop consonants after removal of a preceding fricative. John Lotz, Arthur S. Abramson, Louis J. Gerstman, Frances Ingemann, and William J. Nemser. **31**: 1568—1959
9.12 Systems for Recognition, Transmission, and Generation of Speech
PAPERS
Intelligibility of reiterated speech. Donald J. Sharf. **31**: 423—1959
Minimal rules for synthesizing speech. A. M. Liberman, Frances Ingemann, Leigh Lisker, Pierre Delattre, and F. S. Cooper. **31**: 1490—1959
Results obtained from a vowel recognition computer program. James W. Forgie and Carma D. Forgie. **31**: 1480—1959
Synthesis and perception of nasal consonants. Kazuo Nakata. **31**: 661—1959
ABSTRACTS
Apparatus for the generation of psycho-acoustic stimuli varying in complexity from noise bursts to syllables. George Rosen and Kenneth N. Stevens. **31**: 114—1959
Automatic resolution of speech spectra into elemental spectra. K. N. Stevens, C. G. Bell, P. T. Brady, J. M. Heinz, and G. Rosen. **31**: 844—1959
A voice analog. W. C. Dersch. **31**: 1563—1959
Digital computer simulation for speech experiments. E. E. David, Jr., Max V. Mathews, and H. S. McDonald. **31**: 113—1959
Evaluation of time-frequency scanning for narrow-band speech transmission. Gordon E. Peterson and D. L. Subrahmanyam. **31**: 113—1959
Extant problems in analysis-synthesis telephony. James L. Flanagan. **31**: 112—1959
Extremal coding for speech transmission. Max V. Mathews. **31**: 113—1959
Formant tracking by computer. C. G. Bell, F. Poza, and K. N. Stevens. **31**: 1563—1959
Fricative production by a dynamic analog synthesizer. George Rosen. **31**: 1564—1959
Measurement of digital channel capacity for a speech compression system. R. E. Bach, Jr., C. R. Howard, and S. H. Chang. **31**: 853—1959
New approach to time domain analysis and synthesis of speech. M. R. Schroeder. **31**: 852—1959
New artificial larynx. H. L. Barney, F. E. Haworth, and H. K. Dunn. **31**: 844—1959
Preliminary investigation of certain aspects of intonation. P. Denes. **31**: 852—1959
Results obtained from a vowel recognition computer program. James W. Forgie and Carma D. Forgie. **31**: 844—1959
Some of the current research efforts in Japan in the field of speech science. Osamu Fujimura. **31**: 843—1959
Studies of a method for digital voice communication. Caldwell P. Smith. **31**: 1563—1959
Supplementing the Formoder with fixed vocoder-like bands. R. Sukys, R. E. Bach, Jr., and S. H. Chang. **31**: 113—1959
Synthesis of final /z/ without voicing. George N. Sholes. **31**: 1568—1959
Time compensation for speed of talking in speech recognition machines. Harry F. Olson and Herbert Belar. **31**: 845—1959
Use of digital computers in speech analysis and synthesis. J. W. Forgie, G. W. Hughes, M. V. Mathews, G. L. Schultz, and C. P. Smith. **31**: 1563(T)—1959
Vocoder and its application to the transmission of high-quality speech over narrow-band channels. Manfred R. Schroeder and E. E. David, Jr. **31**: 113—1959
Vocoder output and whispered speech in a tone language: Thai. Arthur S. Abramson. **31**: 1568—1959

10. Ultrasonics (Supersonics)

10.1 General, Unclassified
LETTERS TO THE EDITOR
On the intensity of ultrasonic beams diffracted by a wire grating. Gopala Menon Sreekantath and C. A. Verghese. **31**: 633—1959

Scattering of high frequency sound waves in polycrystalline materials. II. A. B. Bhatia and R. A. Moore. **31**: 1140—1959

ABSTRACTS

Measurement of the adiabatic elastic moduli of alpha uranium as a function of temperature. H. J. McSkimin and E. S. Fisher. **31**: 1586—1959

Ultrasonic luminescence. P. Jarman and R. W. B. Stephens. **31**: 1582(T)—1959

PATENTS

Magnetostrictive pulse delay apparatus. Herman Epstein and Oscar B. Stram. **31**: 266—1959

NEWS

National Ultrasonics Symposium. **31**: 1041, 1389—1959

Piezoelectric production of hypersound. **31**: 639—1959

Ultrasonic News. **31**: 816—1959

Ultrasoundings—a new magazine. **31**: 816—1959

10.2 Light Affected by Ultrasonic Waves

PAPERS

Diffraction of light by ultrasonic waves progressing with finite but moderate amplitudes in liquids. K. L. Zankel and E. A. Hiedemann. **31**: 44—1959

Effect of ultrasonic waves on concentration gradients. Robert Penn, Ernest Yeager, and Frank Hovorka. **31**: 1372—1959

Effects of a progressive ultrasonic wave on a light beam of arbitrary width. L. E. Hargrove, K. L. Zankel, and E. A. Hiedemann. **31**: 1366—1959

Optical methods for the measurement of the sound pressure in liquids. M. A. Breazeale and E. A. Hiedemann. **31**: 24—1959

ABSTRACTS

Effects of progressive ultrasonic waves on a narrow light beam. Experimental. L. E. Hargrove. **31**: 849—1959

Effects of progressive ultrasonic waves on a narrow light beam. Theoretical. K. L. Zankel. **31**: 849—1959

Light diffracted by two parallel ultrasonic waves of the same frequency. K. L. Zankel. **31**: 849—1959

NEWS

Diffraction of light by ultrasonic waves. **31**: 254—1959

10.3 Ultrasonic Instruments. (See also 5.18.)

PAPERS

Acoustic field of a circular piston in the near zone. Robert H. Quint. **31**: 190—1959

Observations on resolution and on field variations in near field sonic optical systems. E. E. Suckling. **31**: 678—1959

Performance of high frequency barium titanate transducers for generating ultrasonic waves in liquids. H. J. McSkimin. **31**: 1519—1959

Strain gauge measurement of output of magnetostrictive ultrasonic transducer pitfalls of optical measurement. Harold Lamport and Hans H. Zinsser. **31**: 435—1959

Ultrasonic spectroscopy in liquids. T. A. Litovitz. **31**: 681—1959

LETTERS TO THE EDITOR

Ultrasonic absorption microscope. Floyd Dunn and William J. Fry. **31**: 632—1959

ABSTRACTS

Analysis for a 3 kMc ultrasonic liquid interferometer. James L. Stewart. **31**: 836—1959

Comparison and discussion of some of the current ideas and methods for obtaining microwave ultrasonics. Rohn Truell. **31**: 836—1959

Excitation, detection, and applications of hypersonic waves. H. E. Bömmel and K. Dransfeld. **31**: 837—1959

Ultrasonic absorption microscope. Floyd Dunn and William J. Fry. **31**: 120—1959

SUBTITLES

Fused silica unit employing molten metal coupling. H. J. McSkimin. **31**: 289—1959

High-temperature unit for longitudinal wave measurements. H. J. McSkimin. **31**: 288—1959

PATENTS

Abrasive flux and flush control system for dental apparatus. Paul J. Tascher. **31**: 1560—1959

Apparatus for locating defects. Werner Grabendörfer. **31**: 658—1959

Apparatus for supersonic examination of bodies. Edward Emanuel Sheldon. **31**: 659—1959

Apparatus for suppressing undesirable modes in ultrasonic flowmeters. Jack Kritz. **31**: 267—1959

Apparatus for ultrasonic cleaning of parts with a solvent. Thomas J. Kearney. **31**: 545—1959

Apparatus for ultrasonic testing. Joseph E. Hunter, Jr., and Norman W. Schubring. **31**: 659—1959

Arrangement for recording the results of the supersonic examination of metal parts. Louis Beaujard, Vladimir Husarek, and Andre Vasset. **31**: 400—1959

Arrangement for ultrasonic material testing. Herbert Trommler. **31**: 399—1959

Automatic ultrasonic inspection. Elliott A. Henry. **31**: 1703—1959

Coupling liquid mechanism for ultrasonic vibrations. Charles Gustav Kaehms. **31**: 826—1959

Coupling means. Frank J. Fry. **31**: 659—1959

Device for nondestructive testing of materials by means of supersonic pulses. Josef Krautkrämer and Herbert Krautkrämer. **31**: 400—1959

Electroacoustic transducer. Samuel M. Bagno. **31**: 399—1959

Electroacoustic transducer with acoustic coupling means. Robert Wilson. **31**: 266—1959

Electrosonic apparatus. Mark E. DeGroff. **31**: 267—1959

Liquid-vibrating apparatus. Leon W. Camp. **31**: 827—1959

Magnetostrictive delay line. Herman Epstein and Oscar B. Stram. **31**: 658—1959

Means for transmitting and receiving ultrasonic shear wave motion. Andrew M. Murdoch. **31**: 546—1959

Measuring apparatus employing ultrasonic waves. Alexander B. C. Rankin. **31**: 659—1959

Method and apparatus for measurement of total sound power output of an ultrasonic transducer. Earl F. Kiernan. **31**: 1702—1959

Method and apparatus utilizing focused ultrasonic transducers to produce radially dispersed compression waves. Thomas J. Kearney. **31**: 267—1959

Methods and means for coupling an ultrasonic transducer to a test specimen. Harald Schulze. **31**: 1702—1959

Multifacet ultrasonic delay line. Herbert J. McSkimin. **31**: 400—1959

Sonic energy apparatus. Alexander Murdoch, Jr. **31**: 826—1959

Temperature-stable ultrasonic delay lines. Herbert J. McSkimin. **31**: 1400—1959

Ultrasonic acoustic wave transmission delay lines. Morton D. Fagan. **31**: 1065—1959

Ultrasonic brazing unit. James Byron Jones, Alfred L. Fuchs, Jr., and William Rugh Bailey. **31**: 400—1959

Ultrasonic cleaning apparatus. Norman G. Branson. **31**: 546—1959

Ultrasonic drill. Lucien A. Petermann. **31**: 400—1959

Ultrasonic drill. Mortimer E. Weiss. **31**: 267—1959

Ultrasonic fissure detector. Richard W. McKee. **31**: 1701—1959

Ultrasonic flowmeter. Lucien A. Petermann. **31**: 1702—1959

Ultrasonic flowmeter transducer mounting. Albert L. Hedrich and Don R. Pardue. **31**: 546—1959

Ultrasonic, high-pressure interferometer. Ernest M. Runquist and Graham W. Marks. **31**: 400—1959

Ultrasonic magnetostriction transducer devices. Benson Carlin. **31**: 266—1959
Ultrasonic penetrant method of flaw detection. Robert C. Switzer. **31**: 827—1959
Ultrasonic stone cutting device. Raymond F. Skowronski. **31**: 267—1959
Ultrasonic testing apparatus. John R. Boxcer and Hans Bincer. **31**: 1702—1959
Ultrasonic testing device. Charles E. Horn. **31**: 1065—1959
Ultrasonic testing of materials. Alexander Bryce Calder Rankin. **31**: 1701—1959
Ultrasonic thickness gauge. Howard E. Van Valkenburg and Edward G. Cook. **31**: 400—1959
Ultrasonic tinning apparatus. Gilbert G. Brown. **31**: 1701—1959
Ultrasonic treatment apparatus. Werner Güttner and Günter Pickel. **31**: 1702—1959
Ultrasonic wave train generator. Elliott A. Henry. **31**: 545—1959
Ultrasonic welder. Eugene J. Cronin. **31**: 267—1959
Vibration testing device. Ivan L. Joy. **31**: 1065—1959
Wave-energy coupling device for ultrasonic energy. Carl L. Meng. **31**: 399—1959

NEWS

Ultrasonic image camera. **31**: 1540—1959

10.4 Gases, Ultrasonic Velocities, Dispersion, and Absorption. (See also 11.3.)

PAPERS

Rotational relaxation in nitrogen, oxygen, and air. Martin Greenspan. **31**: 155—1959
Ultrasonic absorption and thermal relaxation in CO_2. M. C. Henderson and J. Z. Klose. **31**: 29—1959
Velocity of ultrasonics in halogen vapors. E. G. Richardson. **31**: 152—1959

LETTERS TO THE EDITOR

Measurements of thermal relaxation in CO_2 extended to 300°C. F. Douglas Shields. **31**: 248—1959

ABSTRACTS

Multiple vibrational relaxation in gaseous Ch_2Br_2. Norman J. Meyer. **31**: 1586—1959

10.5 Liquids, Ultrasonic Velocities, Dispersion, and Absorption. (See also 13.2 and 13.3.)

PAPERS

Absorption of sound arising from the presence of intact cells in blood. Edwin L. Carstensen and Herman P. Schwan. **31**: 185—1959
Acoustic properties of hemoglobin solutions. Edwin L. Carstensen and Herman P. Schwan. **31**: 305—1959
Compressional relaxation in liquids. R. E. Nettleton. **31**: 557—1959
Optical methods for the measurement of the sound pressure in liquids. M. A. Breazeale and E. A. Hiedemann. **31**: 24—1959
Performance of high frequency barium titanate transducers for generating ultrasonic waves in liquids. H. J. McSkimin. **31**: 1519—1959
Sonically induced microstreaming applied to a surface reaction. W. L. Nyborg, R. K. Gould, F. J. Jackson, and Carl E. Adams. **31**: 706—1959
Study of temperature variation of ultrasonic velocities in some organic liquids by modified fixed-path interferometer method. K. Subba Rao and B. Ramachandra Rao. **31**: 439—1959
Survey of thermal, radiation, and viscous damping of pulsating air bubbles in water. Charles Devin, Jr. **31**: 1654—1959
Ultrasonic spectroscopy in liquids. T. A. Litovitz. **31**: 681—1959
Variation of acoustic velocity with temperature in aqueous solutions of certain inorganic sulfates. Graham W. Marks. **31**: 936—1959

LETTERS TO THE EDITOR

Imbedded thermistor for boundary layer measurements. R. K. Gould and W. L. Nyborg. **31**: 249—1959

ABSTRACTS

Absorption of ultrasonic waves in rotational isomer liquids of the ring type. Melvin E. Pedinoff. **31**: 848—1959
Current status of speed-of-sound measurements in water. Martin Greenspan. **31**: 847—1959
Dependence of acoustic velocity in some aqueous hydroxide solutions on temperature and concentration. Graham W. Marks. **31**: 848—1959
Determination of the velocity of sound in distilled water. Richard Brooks. **31**: 1586—1959
Effect of high pressure on sound absorption in a water-dioxane solution of magnesium sulfate. F. H. Fisher. **31**: 848—1959
Measurement of the ultrasonic absorption and velocity in molten salts. R. W. Higgs and T. A. Litovitz. **31**: 1586—1959
On the effects of diffraction in ultrasonic absorption measurements. E. F. Carome, S. R. Burlage, and W. H. Nichols. **31**: 1586—1959
Parameter of nonlinearity in fluids. R. T. Beyer. **31**: 1586—1959
Separation of temperature and pressure effects in ultrasonic relaxations in liquids by solution measurements. J. E. Piercy. **31**: 848—1959
Some physical aspects of cathodic protection against cavitation damage. A. T. Ellis and I. R. Jones. **31**: 1583—1959
Study of the application of ultrasonic energy to the extraction of belladonna leaf U.S.P. Paul E. Wray and LaVerne D. Small. **31**: 1583—1959
Ultrasonic absorption in electrolytic solutions. John Stuehr, G. S. Verma, Ernest Yeager, and Frank Hovorka. **31**: 1586—1959
Ultrasonic absorption in ethyl acetate. E. F. Carome, F. A. Gutowski, and S. R. Burlage. **31**: 111—1959

SUBTITLES

Velocity of longitudinal waves in molten tin. H. J. McSkimin. **31**: 289—1959

10.6 Solids, Ultrasonic Velocities, Dispersion, and Absorption

PAPERS

Correction for diffraction losses in the ultrasonic field of a piston source. Emmanuel P. Papadakis. **31**: 150—1959
Measurement of ultrasonic wave velocities and elastic moduli for small solid specimens at high temperatures. H. J. McSkimin. **31**: 287—1959
Modifications to standard pulse techniques for ultrasonic velocity measurements. A. Myers, L. Mackinnon, and F. E. Hoare. **31**: 161—1959
Propagation of sound in plate-shaped solid delay lines. Paul M. Sutton. **31**: 34—1959
Propagation of traveling waves in a circular cylinder having hexagonal elastic symmetry. Norman G. Einspruch and Rohn Truell. **31**: 691—1959
Resonance absorption and molecular crystals. II. Benzene. Leonard Libermann. **31**: 1073—1959
Some ultrasonic measurements in normal and superconducting aluminum. R. W. Morse and H. V. Bohm. **31**: 1523—1959
Velocity and attenuation of a narrow-band, high-frequency compressional pulse in a solid wave guide. M. Redwood. **31**: 442—1959

LETTERS TO THE EDITOR

Application of counter-chronograph technique to measurement of sonic velocities. S. Z. R. Hashmi, S. A. Kahn, and I. Ali. **31**: 1384—1959
Scattering of high frequency sound waves in polycrystalline materials. II. A. B. Bhatia and R. A. Moore. **31**: 1140—1959

ABSTRACTS
Determination of the equation of state of solids by ultrasonic methods. O. L. Anderson and H. J. McSkimin. **31**: 848—1959
Grain boundary scattering in copper and brass. David W. Krautkopf. **31**: 846—1959
Measurement of ultrasonic wave velocities and elastic moduli for small solid specimens at high temperatures. H. J. McSkimin. **31**: 111—1959
Second low-temperature peak in the internal friction of aluminum. Edward Lax and Daniel H. Filson. **31**: 845—1959

10.7 Physical Effects of Ultrasonic Waves. (See also 10.2.)
PAPERS
Compressional relaxation in liquids. R. E. Nettleton. **31**: 557—1959
Onset of ultrasonic cavitation in tap water. M. Strasberg. **31**: 163—1959
LETTERS TO THE EDITOR
Effect of gas content in media on ultrasonic cleaning. Larry G. Larson and Edward D. Berglund. **31**: 247—1959
Imbedded thermistor for boundary layer measurements. R. K. Gould and W. L. Nyborg. **31**: 249—1959
ABSTRACTS
Grain boundary scattering in copper and brass. David W. Krautkopf. **31**: 846—1959
Interaction of sound waves with electrons in metals. R. W. Morse. **31**: 110—1959
Interaction of ultrasound and dislocations. A. V. Granato. **31**: 110—1959
Second low-temperature peak in the internal friction of aluminum. Edward Lax and Daniel H. Filson. **31**: 845—1959
Ultrasonic vibration potentials in non-ionic liquids. Ernest Yeager, Jonathan Booker, and Frank Hovorka. **31**: 848—1959
Ultrasonic vibration potentials in polyelectrolytes. Jonathan Booker, Ernest Yeager, and Frank Hovorka. **31**: 120—1959
Ultrasonic welding. Walter Welkowitz. **31**: 120—1959
PATENTS
Method of tenderizing food. Luther G. Simjian. **31**: 268—1959
Sonic liquid-spraying and atomizing apparatus. Leon W. Camp. **31**: 827—1959
Ultrasonic coupling for welding rod. Howard R. Johnson and Jesse Eugene Boyer. **31**: 1156—1959
NEWS
Special session on Cavitation at the Cleveland meeting of the Society. October 22–24, 1959. **31**: 1143—1959

10.8 Chemical Effects of Ultrasonic Waves
ABSTRACTS
Ultrasonic vibration potentials in non-ionic liquids. Ernest Yeager, Jonathan Booker, and Frank Hovorka. **31**: 848—1959

10.9 Biological Effects of Ultrasonic Waves
ABSTRACTS
Photographic studies of erythrocytes in ultrasonic fields. Leonard Binstock and Eugene Ackerman. **31**: 1583—1959
BOOK REVIEWS
International Conference of Ultrasonics in Medicine. Williams and Wilkins, publisher. (Reviewed by W. L. Nyborg.) **31**: 85—1959
Zur Wirkung von Ultraschall auf die Keimung und Entwicklung von Pflanzen und auf den Verlauf von Pflanzenkrankheiten. Karl Walters. (Reviewed by W. L. Nyborg.) **31**: 821—1959
NEWS
Annual meeting of the American Institute of Ultrasonics in Medicine. **31**: 1269—1959
Effect of ultrasonic vibrations on ship barnacles. **31**: 816—1959
Ultrasonics and secretion of gastric juice. **31**: 816—1959
Ultrasonics in medicine. **31**: 253—1959

11. Waves and Vibrations. (See also 13.)

11.1 General, Unclassified
PAPERS
Response of plates to a decaying and convecting random pressure field. Ira Dyer. **31**: 922—1959
Survey of thermal, radiation, and viscous damping of pulsating air bubbles in water. Charles Devin, Jr. **31**: 1654—1959
Theory of noise and vibration insulation of a system with many resonances. Eugen Skudrzyk. **31**: 68—1959
LETTERS TO THE EDITOR
Calibration of two transducers assumed identical. R. J. Urick. **31**: 251—1959
ABSTRACTS
Acoustic Čerenkov effect. Osman K. Mawardi. **31**: 839—1959
Ideal spaced damping treatments for flexural waves. Edward M. Kerwin, Jr. **31**: 846—1959
Magnetohydrodynamic wave guide. Osman K. Mawardi. **31**: 840—1959
Progress in developing a method of analyzing the mechanical and acoustic response of complex structures. William S. Penhallow and Gerald A. Brigham. **31**: 840—1959
Spatial sampling and processing. Philip L. Stocklin. **31**: 116—1959
BOOK REVIEWS
Fluid Dynamics and Heat Transfer. J. G. Knudsen and D. L. Katz. (Reviewed by William L. Haberman.) **31**: 376—1959
Principles and Applications of Random Noise Theory. Julius S. Bendat. (Reviewed by R. W. Benson.) **31**: 86—1959
The Upper Atmosphere. H. S. W. Massey and R. L. F. Boyd. (Reviewed by R. B. Lindsay.) **31**: 1274—1959

11.1.5 Analogies
PAPERS
On the conceptual necessity and use of perfect couplers in schematic diagrams. Horace M. Trent. **31**: 326—1959
Second-order instrumentation systems with frequency-dependent stiffness and damping. Eric Rule, Fred J. Suellentrop, and Thomas A. Perls. **31**: 1457—1959
ABSTRACTS
Equivalent circuit representation of a flexible, porous medium. William W. Lang. **31**: 115—1959
On the conceptual necessity and use of perfect couplers in schematic diagrams. Horace M. Trent. **31**: 125—1959
SUBTITLES
Complete electric analog of composite plate. Günther Kurtze. **31**: 1187—1959
Dynamic model of an installed equipment item. J. A. Skoog and G. G. Setterlund. **31**: 229—1959
Equivalent artificial transmission line of the Astatic barium titanate transducer. D. H. Howling. **31**: 623—1959
Equivalent circuit of acoustically damped accelerometer. C. K. Stedman. **31**: 334—1959
Equivalent circuit of the *normal* impedance of a solid wall. B. G. Watters. **31**: 900—1959
Equivalent circuits of various damping layers. Günther Kurtze. **31**: 1200—1959
Transmission line equivalence for section of composite element. H. J. McSkimin. **31**: 1522—1959
Vocal tract analogs. (a) Actual vocal tract. (b) Equivalent acoustical analog. (c) Equivalent electrical analog. R. L. Miller. **31**: 668—1959
PATENTS
Sound translating system. Ross M. Carrell. **31**: 1156—1959

BOOK REVIEWS
Dynamical Analogies. Harry F. Olson. (Reviewed by P. LeCorbeiller.) **31**: 821—1959

11.2 Diffraction. Interference. Scattering. Reflection. Echoes, Standing Waves

PAPERS
Asymptotic theory of diffraction in inhomogeneous media. Bernard D. Seckler and Joseph B. Keller. **31**: 206—1959
Diffraction of a plane sound wave by a semi-infinite thin elastic plate. George L. Lamb, Jr. **31**: 929—1959
Geometrical theory of diffraction in inhomogeneous media. Bernard D. Seckler and Joseph B. Keller. **31**: 192—1959
Measurement of sound diffusion in reverberation chambers. Manfred R. Schroeder. **31**: 1407—1959
On the diffusion of sound waves in a turbulent atmosphere. Richard H. Lyon. **31**: 1176—1959
On the influence of the diffraction of sound waves around the human head on the characteristics of hearing aids. C. Wansdronk. **31**: 1609—1959
Reflection and refraction of elastic waves at the interface of two moving semi-infinite plane media. J. Clifton Samuels. **31**: 1076—1959
Scattering of high-frequency sound waves in polycrystalline materials. A. B. Bhatia. **31**: 16—1959

LETTERS TO THE EDITOR
Influence of fluid motion past a plane boundary on sound reflection, absorption, and transmission. Uno Ingard. **31**: 1035—1959
On the intensity of ultrasonic beams diffracted by a wire grating. Gopala Menon Sreekantath and C. A. Verghese. **31**: 633—1959
Scattering of high frequency sound waves in polycrystalline materials. II. A. B. Bhatia and R. A. Moore. **31**: 1140—1959

ABSTRACTS
Bistatic scattering from totally reflecting flat plates. P. W. Ankerman and R. A. Rubega. **31**: 841—1959
Excitation of finite plates by variable incidence sound. Ira Dyer and B. G. Watters. **31**: 840—1959
Experiments on scattering of sound by turbulence. Michael D. Mintz and Uno Ingard. **31**: 115—1959
Sound scattering in an inhomogeneous medium in the case of a Kolmogorov distribution of patch sizes. Eugen Skudrzyk. **31**: 845—1959
Test of the validity of a shell theory for the reflection of sound from thin shells. R. R. Goodman. **31**: 840—1959

11.2.1 Gross Movement of Matter by Sound or Vibration. Acoustic Streaming. Chladni Figures. Kundt's Striae. Sensitive Flames. (See also 5.14 and 10.7.)

PAPERS
Sonically induced microstreaming applied to a surface reaction. W. L. Nyborg, R. K. Gould, F. J. Jackson, and Carl E. Adams. **31**: 706—1959

ABSTRACTS
Small scale acoustic streaming near a vibrating piston opposite a rigid boundary. Francis J. Jackson and Wesley L. Nyborg. **31**: 846—1959

11.3 Propagation of Sound. Absorption during Propagation. Velocity of Sound. Second Sound. Refraction. Wavelength. Doppler Effect. (See also 10.4, 10.5, 10.6, 13.2, and 13.3.)

PAPERS
Elastic wave propagation in homogeneous and inhomogeneous media. Frank C. Karal, Jr., and Joseph B. Keller. **31**: 694—1959
Experimental study of the propagation of sound over ground. Francis M. Wiener and David N. Keast. **31**: 724—1959
Finite-amplitude propagation effect on shock-wave travel times from explosions at high altitudes. Joseph Otterman. **31**: 470—1959
Propagation of a pressure pulse in a compressible flow. Alan Powell. **31**: 1527—1959
Propagation of band-limited noise in a layered wave guide. C. S. Clay. **31**: 1473—1959
Propagation of traveling waves in a circular cylinder having hexagonal elastic symmetry. Norman G. Einspruch and Rohn Truell. **31**: 691—1959
Some ultrasonic measurements in normal and superconducting aluminum. R. W. Morse and H. V. Bohm. **31**: 1523—1959
Three-dimensional investigation of the propagation of waves in hollow circular cylinders. I. Analytical foundation. Denos C. Gazis. **31**: 568—1959
Three-dimensional investigation of the propagation of waves in hollow circular cylinders. II. Numerical results. Denos C. Gazis. **31**: 573—1959
Velocity and attenuation of a narrow-band, high-frequency compressional pulse in a solid wave guide. M. Redwood. **31**: 442—1959

LETTERS TO THE EDITOR
Application of counter-chronograph technique to measurement of sonic velocities. S. Z. R. Hashmi, S. A. Kahn, and I. Ali. **31**: 1384—1959
Influence of fluid motion past a plane boundary on sound reflection, absorption, and transmission. Uno Ingard. **31**: 1035—1959
Note on finite amplitude propagation effects on shock wave travel times from explosions at high altitude. S. G. Reed, Jr. **31**: 1265—1959
Observation concerning the attenuation of elastic waves in the ground. Cyril M. Harris and Leonard Kirvida. **31**: 1037—1959
Sound transmission through a velocity discontinuity. Peter Gottlieb. **31**: 1036—1959

ABSTRACTS
Absorption and propagation velocity of sound in argon. Robert Feldstein. **31**: 1587—1959
Absorption of finite amplitude waves. Peter J. Westervelt. **31**: 840—1959
Atmospheric attenuation of sound from an elevated source. Hale J. Sabine and M. D. Burkhard. **31**: 845—1959
Investigation of the shadow zone for a particular sound velocity variation. D. S. Potter and S. R. Murphy. **31**: 845—1959
On the propagation of sound at low frequencies in an inhomogeneous atmosphere. Cyril M. Harris and Leonard B. Kirvida. **31**: 111—1959
Propagation of a pressure pulse in a compressible flow. Alan Powell. **31**: 840—1959
Propagation of pressure waves of finite amplitude in boiling water. Henry B. Karplus. **31**: 840—1959
Propagation of shear waves in Teflon. R. W. Leonard. **31**: 1587—1959
Pulse propagation in rods. D. W. Krautkopf and Eugen J. Skudrzyk. **31**: 111—1959
Ultrasonic Doppler for distance measurement. Melvin H. Wachspress. **31**: 1571—1959

SUBTITLES
Plane waves in a plane stratified medium. Bernard D. Seckler and Joseph B. Keller. **31**: 195—1959

PATENTS
Acoustic transmission systems. Winston E. Kock. **31**: 1703—1959

11.4 Radiation from Vibrating Objects. Acoustic Impedance. (See also 5.3, 12.3Z, and 13.7.)

PAPERS
Acoustic field of a circular piston in the near zone. Robert H. Quint. **31**: 190—1959
Design of directional arrays. John L. Brown, Jr., and Richard O. Rowlands. **31**: 1638—1959

Mutual radiation impedance of sources on a sphere. Charles H. Sherman. 31: 947—1959
Response of plates to a decaying and convecting random pressure field. Ira Dyer. 31: 922—1959
LETTERS TO THE EDITOR
Acoustic interaction in vented loudspeaker enclosures. E. de Boer. 31: 246—1959
ABSTRACTS
Acoustic impedance of a viscoelastic fluid confined between parallel planes. George B. Thurston. 31: 846—1959
Approximation of source strengths of radiating surfaces by vibration measurement. William W. Lang. 31: 1576—1959
Effect of a plane on the power output of a monopole. George C. Maling, Jr. 31: 115—1959
Excitation of finite plates by variable incidence sound. Ira Dyer and B. G. Watters. 31: 840—1959
Sound radiation from a finite cylindrical shell with rigid end caps. Gerald A. Brigham and Matthew F. Borg. 31: 1576—1959
Vibration and sound radiation of plates. David C. Greene. 31: 840—1959
11.5 Sounds of Finite Amplitude. Distortion. (See also 12.3 and 13.10.)
PAPERS
Finite amplitude propagation effect on shock-wave travel times from explosions at high altitudes. Joseph Otterman. 31: 470—1959
Spherical waves of finite amplitude. R. D. Fay. 31: 1377—1959
LETTERS TO THE EDITOR
Note on finite amplitude propagation effects on shock wave travel times from explosions at high altitude. S. G. Reed, Jr. 31: 1265—1959
11.6 Noise in Tubes, Helmholtz Resonators
PAPERS
Attenuation and regeneration of sound in ducts and jet diffusers. Uno Ingard. 31: 1202—1959
On propagation of waves in slightly rough ducts. J. Clifton Samuels. 31: 319—1959
11.6.1 Sources of Sound. (See also 7.8 and 11.4.)
ABSTRACTS
Self-maintained transverse oscillations of a jet; edge tones. J. B. Brackenridge and W. L. Nyborg. 31: 114—1959
11.7 Theory of Waves. (See also 5.4, 11.1.5, and 12.7.)
PAPERS
Acoustic field of a circular piston in the near zone. Robert H. Quint. 31: 190—1959
Asymptotic theory of diffraction in inhomogeneous media. Bernard D. Seckler and Joseph B. Keller. 31: 206—1959
Elastic wave propagation in homogeneous and inhomogeneous media. Frank C. Karal, Jr., and Joseph B. Keller. 31: 694—1959
Geometrical theory of diffraction in inhomogeneous media. Bernard D. Seckler and Joseph B. Keller. 31: 192—1959
Measurement of sound diffusion in reverberation chambers. Manfred R. Schroeder. 31: 1407—1959
Method of obtaining amplitude and phase spectra of a transient function using graphical input data. Wilfred J. Remillard. 31: 531—1959
On propagation of waves in slightly rough ducts. J. Clifton Samuels. 31: 319—1959
On the conceptual necessity and use of perfect couplers in schematic diagrams. Horace M. Trent. 31: 326—1959
Propagation of a pressure pulse in a compressible flow. Alan Powell. 31: 1527—1959
Propagation of band-limited noise in a layered wave guide. C. S. Clay. 31: 1473—1959
Second-order instrumentation systems with frequency-dependent stiffness and damping. Eric Rule, Fred J. Suellentrop, and Thomas A. Perls. 31: 1457—1959
Spherical waves of finite amplitude. R. D. Fay. 31: 1377—1959
LETTERS TO THE EDITOR
Simple examples of magnetomechanical wave motion. Uno Ingard. 31: 1033—1959
ERRATA
Exact analysis of the plane-strain vibrations of thick-walled hollow cylinders. Denos C. Gazis. 31: 250—1959
11.8 Biological Effects of Sound. (See also 10.9 and 12.9.)
PAPERS
Absorption of sound arising from the presence of intact cells in blood. Edwin L. Carstensen and Herman P. Schwan. 31: 185—1959
Intracardiac acoustics. John D. Wallace, James R. Brown, Jr., David H. Lewis, George W. Deitz, III, and Ali Ertugrul. 31: 712—1959
Noise stress in laboratory rodents. I. Behavioral and endocrine response of mice, rats, and guinea pigs. Adam Anthony, Eugene Ackerman, and James A. Lloyd. 31: 1430—1959
Noise stress in laboratory rodents. II. Effects of chronic noise exposures on sexual performance and reproductive function of guinea pigs. Adam Anthony and Jack E. Harclerode. 31: 1437—1959
Scaling human reactions to the sound from aircraft. Karl D. Kryter. 31: 1415—1959
11.9 Physical Effects of Sound. (See also 10.7, 10.8, 11.2.1, and 12.10.)
PAPERS
Cavitation microstreaming. Samuel A. Elder. 31: 54—1959
Hot wire method for visualizing intense stationary sound waves. R. M. Fand and J. Kaye. 31: 810—1959
LETTERS TO THE EDITOR
Thermal effects of acoustic streaming near a cylindrical obstacle. C. T. Walker and C. E. Adams. 31: 813—1959
ABSTRACTS
Comparison of stress response and fatigue test results under random and sinusoidal acoustic loading. Peter M. Belcher, Arthur L. Eshleman, and Joseph D. Van Dyke. 31: 125—1959
Sonic failure. Ira Dyer. 31: 125—1959
Sonic failure research facility. G. W. Kamperman, C. H. Allen, J. R. Sharp, and L. Williams. 31: 1570—1959
Structural acoustic proof testing. H. C. Schjelderup. 31: 125—1959

12. Mechanical Vibration and Shock. (See also 5. and 11.)

12.1 General, Unclassified
PAPERS
Space requirements for equipment items subjected to random excitation. J. A. Skoog and G. G. Setterlund. 31: 227—1959
ABSTRACTS
Design of equipment to withstand shock and vibration. Charles T. Morrow. 31: 1581—1959
Dynamic considerations for neutralizing shock stresses in building subjected to fringe area nuclear blasts. Richard W. Carlisle. 31: 1582—1959
Errors in approximations to maximum transmissibility. John C. Burgess. 31: 1576—1959
Impedance and shock spectra. George J. O'Hara. 31: 846—1959
Instrumentation precision as affected by vibrational environment. C. E. White. 31: 843—1959
Space requirements for airborne equipment excited by random vibration. H. Himelblau and L. M. Keer. 31: 1582—1959
Vibration as a quantitative measuring tool of liquid density. G. J. Thiessen and I. R. Dagg. 31: 843—1959

Vibration measurements of a cylindrical shell in air and water. G. B. Lott and R. E. Bland. 31: 1577—1959

NEWS

Vibration Manual for Engineers. 31: 638—1959

12.3 Instruments and Apparatus Relating to Vibration and Shock. (See also 5.3, 5.4, 5.9, and 5.21.)

PATENTS

Device for producing mechanical shocks. Thomas E. Hanes. 31: 1703—1959

Frequency-sensitive mechanical damping system. Bernard E. O'Connor. 31: 659—1959

Method for determining high intensity transient stresses in impulsively loaded bodies. John Pearson and John S. Rinehart. 31: 1065—1959

12.3i Vibration Isolators, Attenuators and Dampers. (See also 2.11 and 5.21.)

PAPERS

Damping of flexural waves by a constrained viscoelastic layer. Edward M. Kerwin, Jr. 31: 952—1959

Isolation from mechanical shock with one- and two-stage mounting systems. J. C. Snowdon and G. G. Parfitt. 31: 967—1959

Space requirements for equipment items subjected to random excitation. J. A. Skoog and G. G. Setterlund. 31: 227—1959

Steady-state behavior of the dynamic absorber. J. C. Snowdon. 31: 1096—1959

Theory of noise and vibration insulation of a system with many resonances. Eugen Skudrzyk. 31: 68—1959

ABSTRACTS

Comparison of the vibration damping effectiveness of free and constrained viscoelastic layers. Edward M. Kerwin, Jr., and Donald Ross. 31: 1578—1959

Isolation of a rigid body on resilient supports from a vibration environment. G. J. Andrews. 31: 1578—1959

Shear damping treatment involving spacer-foil configuration. Donald Ross. 31: 1578—1959

Utilization of the dynamic mechanical properties of rubber-like materials in vibration control. J. C. Snowdon. 31: 847—1959

PATENTS

Antivibration mounting. Thomas A. Brooke and Eric J. Smith. 31: 1403—1959

Apparatus for making precision antivibration mountings. Leon F. Thiry. 31: 660—1959

Base structure for centrifugal machines. Robert D. Dodge. 31: 1404—1959

Engine mounting. Robert Walsh. 31: 1401—1959

Exhaust stack vibration isolator. George W. Bixler and Carl A. Bierlein. 31: 1401—1959

Flexible noise isolating shaft coupling. Kurt G. F. Moeller. 31: 401—1959

Instrument shock mount. Loren E. Curriston. 31: 1402—1959

Metal hose vibration damper. Francis W. Young. 31: 828—1959

Method of and means for mounting a machine on a vibration absorbing pad. Francis Roland McDermott. 31: 659—1959

Method of making a vibration damper. Fred L. Haushalter. 31: 1158(2 patents)—1959

Motor mounts and clips. Andrew H. Burrise. 31: 1402—1959

Network for damping vibrations of mechanical structures. Raymond H. Griest. 31: 1157—1959

Noise reduction in transformers. Crawford M. Adams. 31: 1402—1959

Omnidirectional shock and vibration isolating device. Richard C. Gazley. 31: 827—1959

Oscillation suppressing device. Gustav Hennig. 31: 1561—1959

Pneumatic mounting system. James A. McNally. 31: 1295(2 patents)—1959

Resilient device. Max Adolf Müller. 31: 1159—1959

Resilient mounting. Eldon R. Cunningham. 31: 827—1959

Rotary mechanical seal and vibration dampening means therefor. Harry Tankus. 31: 1561—1959

Rubber spring for elastic mountings. Antonio Boschi and Vittorino Mastropietro. 31: 659—1959

Shock absorption and vibration isolator. Robert A. Barbera. 31: 1404—1959

Shock and vibration base mount. Raymond P. Applegate. 31: 1065—1959

Shock and vibration damping device. Federico Sinisterra. 31: 1401—1959

Shock and vibration isolation device. Lyle E. Matthews and E. Quinby Smith, Jr. 31: 1403—1959

Shock and vibration mount having nonrotational features. Kenneth E. Goode. 31: 1561—1959

Shock mount. Walter J. Mordarski. 31: 828—1959

Shock mount. Walter J. Mordarski and William H. Spencer. 31: 828—1959

Shock-proof instrument mounting. Charles N. Ehrlich. 31: 1561—1959

Sound-proof and shock absorbing bearing for precision mechanisms. Pierre E. R. Fauvelot. 31: 1404—1959

Supporting structure for clothes washing machines and the like. Fred W. Moore. 31: 1295—1959

Suspended wire vibration damping means. James Gordon. 31: 1158—1959

Torsional vibration absorber. Oscar H. Banker. 31: 1401—1959

Torsional vibration damper. Edward R. Hansz. 31: 1401 1959

Tuned vibration damping system for drive trains. Frederick C. Aebersold. 31: 1404—1959

Vibration dampener. Kenneth W. Johnson. 31: 1157, 1402—1959

Vibration dampener. Clarence W. Myers. 31: 1157—1959

Vibration dampening attachment. Robert E. Wallin. 31: 1158—1959

Vibration dampening means for brakes, clutches, and the like. George P. Fleischman. 31: 1157—1959

Vibration damper. Phillip C. Bowser and Maurice Olley. 31: 401—1959

Vibration damper. René Lucien. 31: 1403—1959

Vibration damper. Thomas H. Peirce and James B. Robinson. 31: 1157—1959

Vibration damper for towed cables, periscopes, and the like. Bernard A. Wiener. 31: 829—1959

Vibration dampers for gas turbine wheels and the like. Edward A. Stalker. 31: 1404—1959

Vibration damping means for bladings of turbomachines. René Anxionnaz. 31: 1295—1959

Vibration isolating mounts. Raymond G. Hartenstein and James J. Kerley, Jr. 31: 1403—1959

Vibration-isolating power plant mounting system. Gordon L. Getline. 31: 1400—1959

Vibration isolation system and instrument mount. Arnold J. Roccati. 31: 401—1959

Vibration isolator. Kenneth W. Johnson. 31: 1157—1959

Vibration-resistant support for laboratory balances or the like. Parke W. Carter. 31: 1561—1959

12.3p Vibration Pickups and Indicators, Calibration Equipment and Techniques. (See also 5.9, 5.18, and 13.11t.)

PAPERS

Acoustical damping for linear accelerometers. C. K. Stedman. 31: 333—1959

Calibration of accelerometers in a simulated space environment. David N. Keast. 31: 584—1959

Capacitance-type displacement probe. Russel D. Shattuck. **31**: 1297—1959
Dynamic force measuring system for machinery vibration with particular application to balancing of assembled machines. T. W. Barraclough, R. D. Collier, and A. C. Summers. **31**: 1104—1959
Strain gauge measurement of output of magnetostrictive ultrasonic transducer—pitfalls of optical measurement. Harold Lamport and Hans H. Zinsser. **31**: 435—1959

ABSTRACTS
New portable sound and vibration analyzer. James J. Faran, Jr. **31**: 843—1959

PATENTS
Acceleration responsive system. Francis B. Woestemeyer. **31**: 1562—1959
Accelerometer. Abraham I. Dranetz. **31**: 1561—1959
Balancing machine pickup. Fred R. Bokorney. **31**: 660—1959
Electric accelerometer. Louis D. Statham. **31**: 1158—1959
Electric transducer. Louis D. Statham. **31**: 660—1959
Inertia responsive electromechanical transducer. Lester Feinstein. **31**: 1562—1959
Recording vibration meter using angular modulation. Gunther K. Guttwein. **31**: 268—1959
Resonant pickup device. Kauno E. Sihvonen. **31**: 660—1959
Sonic vibration detection apparatus. Philip Dubilier. **31**: 829—1959
Transducer and stress measuring means. Patrick E. Cavanagh. **31**: 1405—1959
Velocity transducer. Avrel Mason. **31**: 1159—1959
Vibration indicator. Norton W. Bell. **31**: 1561—1959
Vibration measuring device. Nils G. Hjalmar and Stig O. Juselius. **31**: 1158—1959
Vibration or shock detecting device. Meier Sadowsky. **31**: 1562—1959
Vibration pickup. Milton P. Vore and Herbert M. Kroft. **31**: 1296—1959
Vibration pickup device. Charles W. Gadd. **31**: 1158—1959
Vibrometers. Gifford E. White. **31**: 1159—1959

12.3v Vibration Generators. Shake Tables. (See also 5.21.)

ABSTRACTS
Graphical method of determining the ratings of shaker-amplifier systems for sine wave and random noise vibration testing. F. M. Tillou and K. J. Metzgar. **31**: 126—1959

PATENTS
Electrodynamic vibration test equipment. Philip C. Efromson. **31**: 1159—1959
Electromagnetic vibration exciter. Galt B. Booth, William G. Brown, and Karl Unholtz. **31**: 660—1959
Fluid-operated vibration test exciter. John A. Dickie. **31**: 1405—1959
Mechanical vibrator. Donald G. Wysong. **31**: 1405—1959
Vibration calibrator. Wilfrid A. Yates and Martin Davidson. **31**: 1160—1959
Vibration generator. Michran K. Awedissjan. **31**: 1405—1959
Vibration generator. Robert C. Lewis. **31**: 1562—1959

12.3Z Mechanical Impedance Measurement. (See also 5.3 and 11.4.)

PATENTS
Ultrasonic apparatus for the nondestructive evaluation of structural bonds. James S. Arnold. **31**: 829—1959

12.5 Shock. (See also 11.5 and 13.10.)

PAPERS
Finite-amplitude propagation effect on shock-wave travel times from explosions at high altitudes. Joseph Otterman. **31**: 470—1959
Impedance and shock spectra. George J. O'Hara. **31**: 1300—1959

LETTERS TO THE EDITOR
Note on finite amplitude propagation effects on shock wave travel times from explosions at high altitude. S. G. Reed, Jr. **31**: 1265—1959

NEWS
Stress waves in solids. **31**: 373—1959

12.7 Vibration. Theory of Vibrating Systems. (See also 11.7 and 11.1.5.)

PAPERS
Bending wave propagation in multilayer plates. Günther Kurtze. **31**: 1183—1959
Damping of flexural waves by a constrained viscoelastic layer. Edward M. Kerwin, Jr. **31**: 952—1959
Flexural vibration of thin laminated plates. Karl S. Pister. **31**: 233—1959
Inextensional vibrations of a sphere-cone shell combination. Herbert Saunders and Paul R. Paslay. **31**: 579—1959
On the conceptual necessity and use of perfect couplers in schematic diagrams. Horace M. Trent. **31**: 326—1959
Piezoelectric relations and the radial deformation of a polarized spherical shell. R. A. Toupin. **31**: 315—1959
Response of plates to a decaying and convecting random pressure field. Ira Dyer. **31**: 922—1959
Scattering of impulsive elastic waves by a rigid cylinder. Freeman Gilbert and Leon Knopoff. **31**: 1169—1959
Second-order instrumentation systems with frequency-dependent stiffness and damping. Eric Rule, Fred J. Suellentrop, and Thomas A. Perls. **31**: 1457—1959
Space requirements for equipment items subjected to random excitation. J. A. Skoog and G. G. Setterlund. **31**: 227—1959
Thickness-shear vibrations of circular bars. J. H. Baltrukonis and W. G. Gottenberg. **31**: 734—1959
Three-dimensional investigation of the propagation of waves in hollow circular cylinders. I. Analytical foundation. Denos C. Gazis. **31**: 568—1959
Three-dimensional investigation of the propagation of waves in hollow circular cylinders. II. Numerical results. Denos C. Gazis. **31**: 573—1959
Transient behavior of the dynamic absorber. J. C. Snowdon. **31**: 1668—1959
Velocity and attenuation of a narrow-band, high-frequency compressional pulse in a solid wave guide. M. Redwood. **31**: 442—1959
Vibration of uniform square plates bounded by flexible beams. Hugh L. Cox and Wilcomb A. Benfield. **31**: 963—1959

LETTERS TO THE EDITOR
Nonaxially symmetric motions of cylindrical shells. I. Mirsky and G. Herrmann. **31**: 250—1959
Problem of elastic bar with mixed time-dependent end conditions of general form. G. P. DeVault and C. W. Curtis. **31**: 635—1959
Simple examples of magnetomechanical wave motion. Uno Ingard. **31**: 1033—1959
Vibrations of thick cylindrical shells. J. E. Greenspon. **31**: 1682—1959

ABSTRACTS
Analytic study of the vibrating free disk. Raymond N. House and Jack Kritz. **31**: 1576—1959
Application of the mechanical impedance concept to shock and vibration testing. Charles T. Morrow. **31**: 1581—1959
Bending wave propagation in multilayer plates. Günther Kurtze. **31**: 115—1959
Displacement, resonant frequencies, and impedance characteristics of a free-end cylindrical shell. Matthew F. Borg and Gerald A. Brigham. **31**: 1576—1959
Driving point impedances of cylindrical structures. Peter A. Franken. **31**: 1576—1959

Experimental use of electrical network theory in complex linear mechanical structures. David A. Stewart. **31**: 125—1959
Forced oscillation of a spring-mass system having combined Coulomb and viscous damping. Edwin S. Levitan. **31**: 1576—1959
Mode coupling on a string—an example of magneto-mechanics of extended systems. Uno Ingard. **31**: 114—1959
Point excitation of a cylindrical shell. Peter A. Franken. **31**: 115—1959
Random vibration. Charles T. Morrow. **31**: 847—1959
Response of nonlinear strings to random force fields. Richard H. Lyon. **31**: 115—1959
Response of plates to moving shocks. Eric E. Ungar. **31**: 1581—1959
Response of structures to sound. P. W. Smith, Jr. **31**: 1581—1959
Techniques and pitfalls in random vibration testing. R. C. Lewis. **31**: 847(T)—1959
Vibration of rods between 20 and 200 000 cycles. H. J. Biesterfeldt, Jr. **31**: 111—1959
Vibrations of conical shells. H. Saunders, E. J. Wisniewski, and P. R. Paslay. **31**: 1577—1959

BOOK REVIEWS

Mechanical Vibration. G. W. Van Santen. (Reviewed by Horace M. Trent.) **31**: 85—1959
Random Vibration. Stephen H. Crandall, editor. (Reviewed by Charles E. Crede.) **31**: 86—1959

ERRATA

Exact analysis of the plane-strain vibrations of thick-walled hollow cylinders. Denos C. Gazis. **31**: 250—1959

12.10 Seismology Seismographs

PAPERS

First motion methods in theoretical seismology. Leon Knopoff and Freeman Gilbert. **31**: 1161—1959

ABSTRACTS

White noise representation of earthquake motion in elasto-plastic structures. G. N. Bycroft. **31**: 847—1959

13. Underwater Sound

13.1 General, Unclassified

PAPERS

Survey of thermal, radiation, and viscous damping of pulsating air bubbles in water. Charles Devin, Jr. **31**: 1654—1959

LETTERS TO THE EDITOR

Acoustic characteristics of a Florida lake bottom. Robert J. Bobber. **31**: 250—1959
On the variation of acoustic radiation resistance in water under ultrasonic cavitation. Yoshimitsu Kikuchi and Hiroshi Shimizu. **31**: 1385—1959

ABSTRACTS

Correlation of some SOFAR arrivals in the western North Atlantic. J. Northrop and A. Berman. **31**: 838—1959
Frequency selective characteristics of arrays of parallel tubes having sound-soft walls. Fred Bohls and Herbert Hillery. **31**: 131—1959
Information processing and acoustic systems. Charles J. Loda. **31**: 130—1959
Instrumentation and techniques for oceanographic acoustic surveys by aircraft. J. J. Coop. **31**: 833—1959
When sonar was called submarine signalling. Laurence Batchelder. **31**: 832—1959

NEWS

Underwater acoustics medal. **31**: 1143—1959

13.2 Propagation of Sound in Water. Attenuation. Fluctuation

PAPERS

Model experiments on sound propagation in shallow seas. A. B. Wood. **31**: 1213—1959
Some characteristics of long-range explosive sound propagation. T. Arase. **31**: 588—1959

ABSTRACTS

Acoustic Lloyd mirror effect in deep ocean water. R. L. Steinberger. **31**: 838—1959
Acoustic measurements in deep water using the Bathyscaphe. M. R. Lomask. **31**: 837—1959
Correlation of some SOFAR arrivals in the western North Atlantic. J. Northrop and A. Berman. **31**: 838—1959
Fluctuations in pulsed cw transmission. M. V. Brown and J. Ricard. **31**: 1572—1959
Fluctuations of low-frequency harmonic signals over very long transmission paths in the deep ocean. A. Berman, C. S. Clay, R. A. Frosch, and H. B. Sherry. **31**: 838—1959
Image summation in shallow-water sound propagation. R. J. Urick. **31**: 832—1959
Long-range sound propagation in shallow water. K. V. Mackenzie. **31**: 1573—1959
Long-range sound propagation in the deep ocean. F. E. Hale. **31**: 1572—1959
Low-frequency sound transmission in very shallow water. R. J. Urick and R. T. Moore. **31**: 130—1959
Model experiments relating to sound propagation in shallow seas. A. B. Wood. **31**: 130—1959
Numerical solution for the problem of long-range sound propagation in continuously stratified media, with applications to the deep ocean. I. Tolstoy and J. May. **31**: 1572—1959
Preliminary investigation of internal waves and underwater sound. Owen S. Lee. **31**: 838—1959
Propagation of low frequency cw signals in the deep ocean. A. N. Guthrie, I. Tolstoy, and J. Shaffer. **31**: 1572—1959
Propagation of narrow band-limited noise in a layered wave guide. C. S. Clay. **31**: 838—1959
Propagation of sound between a fixed source and a fixed receiver in the ocean. C. S. Clay, M. Blaik, H. B. Sherry, L. Tyson, and P. Weber. **31**: 1572—1959
Propagation of sound originating in the water and detected in the ground. M. Blaik and C. S. Clay. **31**: 838—1959
Ray analysis of low-frequency sound propagation in shallow water. E. G. McLeroy. **31**: 131—1959
Shallow water sound propagation studies in an intermediate scale model. J. A. Scrimger. **31**: 837—1959
Some effects of velocity structure on low-frequency propagation in shallow water. A. O. Williams, Jr. **31**: 1573—1959
Sound propagation in shallow water. George A. Ruff. **31**: 838—1959

BOOK REVIEWS

Introduction to the Theory of Sound Transmission. C. B. Officer. (Reviewed by R. B. Lindsay.) **31**: 1273—1959

13.3 Velocity of Sound in Water. Refraction. Doppler Effect

PAPERS

Sound velocity in water above 212°F. J. C. McDade, D. R. Pardue, A. L. Hedrich, and F. Vrataric. **31**: 1380—1959
Speed of sound in distilled water as a function of temperature and pressure. Wayne D. Wilson. **31**: 1067—1959
Tables of the speed of sound in water. Martin Greenspan and Carroll E. Tschiegg. **31**: 75—1959

LETTERS TO THE EDITOR

Transistorized velocimeter for measuring the speed of sound in the sea. Carl E. Tschiegg and Earl E. Hays. **31**: 1038—1959

ABSTRACTS

Current status of speed-of-sound measurements in water. Martin Greenspan. **31**: 847—1959
Formulas for the computation of sound velocity in sea water. K. V. Mackenzie. **31**: 131—1959

SUBTITLES

Approximate acoustic model of the Atlantic Ocean; sound velocity as a function of depth. T. Arase. **31**: 588—1959

13.4 Reflection. Echoes. Structures for Absorbing Sound in Water

LETTERS TO THE EDITOR

Acoustic characteristics of a Florida lake bottom. Robert J. Bobber. **31**: 250—1959

ABSTRACTS

Absorption and reflection characteristics of a waterfilled anechoic tank. Robert F. Marboe and Robert W. Farwell. **31**: 1573—1959

Acoustic Lloyd mirror effect in deep ocean water. R. L. Steinberger. **31**: 838—1959

Lloyd's mirror test of a wedge-lined "anechoic" tank. A. Yingling and H. Medwin. **31**: 131—1959

Reflection of sound from coastal bottoms. K. V. Mackenzie. **31**: 131—1909

PATENTS

Acoustic panel. Harry Sussman. **31**: 1406—1959

Underwater sound reflector. Lester Clare Van Atta. **31**: 108—1959

13.6 Scattering. Reverberation in Water

ABSTRACTS

Long-range sound reverberation in shallow water. K. V. Mackenzie. **31**: 1573—1959

Scattering of acoustic energy by solid and air-filled cylinders in water. G. R. Barnard and C. M. McKinney. **31**: 1566—1959

Scattering of acoustic energy from solid metal spheres in water. L. D. Hampton and C. M. McKinney. **31**: 846—1959

Side-scattering of sound in shallow water. R. J. Urick. **31**: 1573—1959

Underwater noise in a semireverberant environment. D. W. Saltus. **31**: 837—1959

13.7 Radiation from Objects Vibrating under Water. Acoustical Impedance. Mechanical Impedance. (See also 5.3, 11.4, and 12.3Z.)

PAPERS

Performance of high frequency barium titanate transducers for generating ultrasonic waves in liquids. H. J. McSkimin. **31**: 1519—1959

LETTERS TO THE EDITOR

On the variation of acoustic radiation resistance in water under ultrasonic cavitation. Yoshimitsu Kikuchi and Hiroshi Shimizu. **31**: 1385—1959

PATENTS

Methods of and means for reducing noises and vibrations produced by screw propellers of ships. Ludwig Kort. **31**: 829—1959

13.8 Sound Generation by Fluid Motion, Bubbles, Turbulence, Cavitation, or Splashes

PAPERS

Cavitation microstreaming. Samuel A. Elder. **31**: 54—1959

Onset of ultrasonic cavitation in tap water. M. Strasberg. **31**: 163—1959

Splashes as sources of sound in liquids. G. J. Franz. **31**: 1080—1959

Survey of thermal, radiation, and viscous damping of pulsating air bubbles in water. Charles Devin, Jr. **31**: 1654—1959

ABSTRACTS

Boundary layer induced flow noise. Ira Dyer. **31**: 1566—1959

Cavitation generated by single underpressure pulses. Günther Kurtze. **31**: 119—1959

Flow-noise measurements with buoyant units. G. P. Haddle and E. J. Skudrzyk. **31**: 1567—1959

Sonic depth recording of bubble cluster migration from underwater explosions. John E. Nafe, George B. Tirey, and Maurice Ewing. **31**: 131—1959

Sound radiation by a turbulent boundary layer. E. J. Skudrzyk and G. P. Haddle. **31**: 1567—1959

13.9 Noise in Water. Ship Noise. Biological Noises

ABSTRACTS

Acoustic measurements in deep water using the Bathyscaphe. M. R. Lomask. **31**: 837—1959

Ambient noise levels in a deep inland lake under exceptionally calm surface conditions. Morton R. Lomask and R. Alfred Saenger. **31**: 837—1959

Investigation of shallow water ambient noise. Frank T. Dietz, J. Steven Kahn, and William B. Birch. **31**: 837—1959

Noise due to unsteady flow. Mark Harrison. **31**: 1566—1959

Underwater noise in a semireverberant environment. D. W. Saltus. **31**: 837—1959

PATENTS

Sonic action fish lure. John C. Backe. **31**: 1406—1959

13.10 Sounds of Finite Amplitude in Water. Explosions. Distortion. Cavitation. (See also 11.5 and 12.5.)

LETTERS TO THE EDITOR

On the variation of acoustic radiation resistance in water under ultrasonic cavitation. Yoshimitsu Kikuchi and Hiroshi Shimizu. **31**: 1385—1959

ABSTRACTS

Acoustic spectrum of transient cavitation processes. Berthold Zarwyn. **31**: 1582—1959

Experimental investigation of cavity collapse pressures. I. R. Jones and A. T. Ellis. **31**: 1582—1959

Physics of acoustic cavitation. Hugh Guthrie Flynn. **31**: 1582—1959

Practical and experimental aspects of cavitation. John Karpovich. **31**: 1583—1959

Review of cavitation topics presented at the Third International Congress on Acoustics in Stuttgart. T. F. Hueter. **31**: 1583(T)—1959

Submarine shock motions resulting from underwater explosions. R. O. Belsheim. **31**: 847—1959

NEWS

Special session on Cavitation at the Cleveland meeting of the Society, October 22-24, 1959. **31**: 1143—1959

13.11 Instruments Relating to Underwater Sound. General

PATENTS

Audible fishing lure. John Romeo. **31**: 401—1959

Sonic radio link wave height meter. Louis E. Smith, Jr. **31**: 1065—1959

Spark discharge sound generator. Albert G. Bodine, Jr., and James D. Stoakes. **31**: 1703—1959

13.11n Navigational Instruments Using Underwater Sound. Underwater Listening and Echo Ranging Devices. Sonar

PATENTS

Apparatus and method for echo ranging. Arthur Nelson Butz, Jr. **31**: 829—1959

Cyclic gain controls for sonar devices. Roy H. Malm. **31**: 829—1959

Depth sounder keying and writing apparatus. Gilbert A. Horsman. **31**: 1066—1959

Depth-sounding devices. Robert A. Fryklund. **31**: 268, 1066—1959

Echo elongator. Burton Frankel and Frederick B. Cupp. **31**: 1703—1959

Echo-ranging devices. Robert A. Fryklund. **31**: 401—1959

Echo-ranging recording apparatus. Frederick D. Parker and Louis R. Padberg. Jr. **31**: 1704—1959

Echo-ranging training device. Firth Pierce, George A. Brettell, Jr., Melvin O. Kappler, and Clark F. Bradley, **31**: 829—1959

Echo sounding recorder. Hans Kietz. **31**: 1562—1959

Hydrophone for directional listening buoy. Heinrich O. Benecke. **31**: 1704—1959

Sonar apparatus. John W. Dudley and Roy H. Malm. **31**: 1703—1959
Sonar simulator. Robert H. Harwood. **31**: 1065—1959
Submarine echo-sounding apparatus for fishing vessels. Nicolas Pierre Schutz and Ralph William Weedgate. **31**: 402—1959
Transducer mounting system. Robert A. Fryklund. **31**: 402—1959

13.11t Transducers for Underwater Sound. Transducer Calibration. (See also 5.18.)

PAPERS

Comparison between the performances of a time averaged product array and an intraclass correlator. D. C. Fakley. **31**: 1307—1959
Design of directional arrays. John L. Brown, Jr., and Richard O. Rowlands. **31**: 1638—1959
Hydrophone minor lobes produced by volume scattering. Thaddeus G. Bell. **31**: 1304—1959
Pressure phone for hydrophone calibrations. Claude C. Sims and Robert J. Bobber. **31**: 1315—1959
Standard calibration hydrophone. Claude C. Sims. **31**: 1676—1959

LETTERS TO THE EDITOR

Calibration of two transducers assumed identical. R. J. Urick. **31**: 251—1959

ABSTRACTS

Absolute calibration of pressure-sensitive hydrophones by a Thevenin's generator method. Louis G. Beatty. **31**: 832—1959
Balanced hydrophone with isolated shield. David C. Greene. **31**: 1567—1959
Comparative study of three types of cylindrical reflectors for narrow beam sonar transducers. George Innis and Tom Owen. **31**: 131—1959
Effect of phase errors on the direction finding precision of hydrophone arrays. Thaddeus G. Bell. **31**: 1567—1959
General theory for the synthesis of hydrophone arrays. H. S. Heaps. **31**: 832—1959
Impedance tube for underwater sound transducer evaluation. Robert J. Bobber and Louis G. Beatty. **21**: 832—1959
Line hydrophone with frequency dependent beam steering. M. V. Mechler. **31**: 1567—1959
Pressure phone for hydrophone calibrations. Claude C. Sims and Robert J. Bobber. **31**: 131—1959

SUBTITLES

(a) Directional transducer. (b) Nondirectional transducer. A. B. Wood. **31**: 1216—1959

PATENTS

Acoustic baffle construction. Wilbur T. Harris. **31**: 660—1959
Circuit element transducer. Wilbur T. Harris. **31**: 1704—1959
Compressional wave transducers. Laurence Batchelder. **31**: 268—1959
Low frequency broad band underwater transducer. Albert A. Hudimac and Robert C. Mathes. **31**: 1066—1959
Method of fabrication of condenser strip hydrophones. Dominic J. Repici. **31**: 1160—1959
Transducer. Wilbur T. Harris. **31**: 1160—1959
Vibratory devices. William E. McCown and James W. McAuley. **31**: 1562—1959

American Institute of Physics Publications

For the American Physical Society

THE PHYSICAL REVIEW

Semimonthly. Original research in experimental and theoretical physics.

REVIEWS OF MODERN PHYSICS

Quarterly. Discussions of current problems of physics.

BULLETIN OF THE AMERICAN PHYSICAL SOCIETY

8 times yearly. Abstracts of papers given at all Physical Society Meetings, minutes, advance information of Meetings.

PHYSICAL REVIEW LETTERS

Semimonthly. Timely short reports of important new findings.

For the Optical Society of America

JOURNAL OF THE OPTICAL SOCIETY OF AMERICA

Monthly. Original papers on optics in all its aspects.

For the Acoustical Society of America

THE JOURNAL OF THE ACOUSTICAL SOCIETY OF AMERICA

Monthly. Original papers on acoustics in all its aspects.

NOISE CONTROL

Bimonthly. Covers all phases of noise, its measurement and control, and its effect on people.

For the American Association of Physics Teachers

AMERICAN JOURNAL OF PHYSICS

Nine times yearly. Stresses educational, historical, and philosophic aspects of physics.

Under Institute Sponsorship

THE REVIEW OF SCIENTIFIC INSTRUMENTS

Monthly. Scientific instruments, apparatus and techniques.

THE JOURNAL OF CHEMICAL PHYSICS

Monthly. Bridges the gap between physics and chemistry.

JOURNAL OF APPLIED PHYSICS

Monthly. Applying physics in industry and in other sciences.

THE PHYSICS OF FLUIDS

Bimonthly. Original research in statistical mechanics, structure and general physics of gases, liquids, plasmas, and other fluids.

PHYSICS TODAY

Monthly. Developments in physics for physicists and others.

SOVIET PHYSICS—J.E.T.P.

Monthly. Complete translation of Journal of Experimental and Theoretical Physics of Academy of Sciences, U.S.S.R.

SOVIET PHYSICS—SOLID STATE

Monthly. Complete translation of the Solid State Physics Journal of Academy of Sciences, U.S.S.R.

SOVIET PHYSICS—TECHNICAL PHYSICS

Monthly. Complete translation of Journal of Technical Physics of Academy of Sciences, U.S.S.R.

SOVIET PHYSICS—DOKLADY

Bimonthly. Complete translation of the "Physics Section" of Proceedings of Academy of Sciences, U.S.S.R.

SOVIET PHYSICS—ACOUSTICS

Quarterly. Complete translation of Journal of Acoustics of Academy of Sciences, U.S.S.R.

SOVIET PHYSICS—CRYSTALLOGRAPHY

Bimonthly. Complete translation of the Crystallography Journal of Academy of Sciences, U.S.S.R.

SOVIET PHYSICS—USPEKHI

Bimonthly. Translation of original Russian material in Progress of Physical Sciences of Academy of Sciences, U.S.S.R.

SOVIET ASTRONOMY—AJ

Bimonthly. Complete translation of the Astronomical Journal of Academy of Sciences, U.S.S.R.

For subscription prices and other information, write to:

AMERICAN INSTITUTE OF PHYSICS

335 East 45 Street, New York 17, New York